```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Perfect score:
                                                                                                                                                                                                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being and is derived by analysis of the total score distribution.
                                                                                                                                                                                                              150
148.5
115
105
                                                                                                                                                                                                                                                                                                              Score
                                                                                                                                                          98.5
98.5
98.5
98.5
            97
97
93
93
93
93
                                                                                                                                                                                                                                                                                                            Match Length
                                                                                                                                                                                                                                                                                                                                                                                                    Issued_Patents_AA:*

1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*

2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*

3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*

4: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*

5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*

6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MKVTVAFNQFGPNRRVFIKR.....KFIRRVDGIIAAYQNPASWK 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-142-524D-3
711
           262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          April 23, 2003, 18:04:50 ; Search time 15 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.4 p5 4578 Copyright (c) 1993 - 2003 Compugen Ltd.
         387
397
397
397
397
397
391
391
391
398
398
                                                                                                                                                                   367
370
514
128
20
127
387
387
387
                                                                                                                                                                                                                                                                                                            DB
              US-08-464-000-72
US-08-290-448A-76
US-08-175-069A-76
US-08-175-069A-76
US-08-461-039B-76
US-08-464-000-79
US-08-290-448A-59
US-08-290-448A-59
US-08-175-069A-74
US-08-290-448A-74
US-08-290-448A-74
US-08-175-069A-74
                                                                                                                                                                US-08-467-023-188
US-08-290-448A-72
US-08-290-448A-72
US-08-290-448A-72
US-08-175-069A-72
US-08-461-939B-72
                                                                                                                                                                                                                    US-08-467-023-187
US-08-467-023-33
                                                                                                                                                                                                                                                     US-08-467-023-95
US-08-467-023-97
                                                                                                                                                                                                                                                                                      US-08-467-023-62
                                                                                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (without alignments)
262.845 Million cell updates/sec
                                                                                                                                                                                                                                                                                                        Description
                                                                                                                                                     Sequence
Sequence
                                                                                                                                                                                                         Sequence
                                              Sequence
     Sequence
                                    Sequence
                                                                                                  Sequence
                                                                                                             Sequence
                                                                                                                      Sequence
                                                                                                                                  Sequence
                                                                                                                                                                          Sequence
                                                                                                                                                                                    Sequence
                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                        Sequence
                           sequence
                                                                  Sequence
                                                                               Sequence
                                                                                        Sequence
                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                  have
                                                                                                                                                                                                                                                                                                                                                                       printed,
                                                                                                                                                                                                        95, Appl
97, Appl
134, App
187, App
187, Appl
33, Appl
                                                                                                                                                                                                                                                                       Appli
                                 TELEPHONE: (617) 227-7400
TELEPAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 62:
SEQUENCE CHARACTERISTICS:
LENGTH: 60 amino acids
TYPE: amino acid
TODOY COV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 1
US-08-467-023-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 62
                                                                                                            CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/350,225
FILING DATE: December 6, 1994
ATTORNEY/AGENT INFORMATION:
NAME: Jane E. Remillard
REGISTRATION NUMBER: 38,872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Griffe
TOPOLOGY: 1i
MOLECULE TYPE:
FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE/DOCKET NUMBER: 02
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                           COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                       ZIP: 02154
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                       APPLICATION NUMBER: US/08/467,023 FILING DATE: June 6, 1995
                                                                                                                                                                                                                                                                                                            STREET: 610 Li
                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
                                                                                                                                                                                                                                                                                                    ¥
                                                                                                                                                                                                                                                                                                                      610 Lincoln St
                                                                                                                                                                                                                                                                                         USA
                      linear
internal
          peptide
```

U	44	۱.	, V	۰ ۱	• •	v	0 0	۰ م	10	ח מ	ת	4.	u	۱,) +	. (0	9	α	•
81	81	81.5	8 L . 5		, a	0 0	0	0 0	D 0	0 0	98	88	88	88	0 0) L	2	91.5	93	:
11.4	11.4	11.5	11.5	11./	12.1	12.1	12.1	12.1	1.7.1					12.4				12.9	13.1	
127	20	234	24	30	388	886	200	200	2 0	0 0	ב ה ה	383	383	383	186		3	30	398	
ω	ω	4	W	w	4	4.	- μ	٠ -	٠,	. ,;	۰ م	4	٢	۱.,	-			w	4	
US-08-467-023-189	-08	'US-09-219-983A-7	US-08-467-023-72	US-08-467-023-67	US-08-464-000-80	-08	US-08-175-069A-80	80-	80-	0	00 404	US-08-461-939B-78	US-08-175-069A-78	US-08-290-448A-78	US-08-290-448A-78	05-08-467-023-34		US-08-467-023-71	US-08-464-000-74	
Sequence 189, App	٠,	7	72	Sequence 67, App.	Sequence 80, Apr	Sequence 80, App	Sequence 80, App	Sequence 80, App	Sequence 80, App	Sequence 78, Ap	•	1 .	78	78	78,	Sequence 34, App	ddw 'T' actuaring	1	Seguence 74. An:	
ដ	۱:	J. 1	۲.	۲.	Ľ	监.	۲,	2	2	끈	12	. (ے:	ບ′	2	2	ç	1	_	

ALIGNMENTS

APPLICANT: Bond, Julian F.;
APPLICANT: Garman, Richard D;
APPLICANT: Kuo, Mei-Chang;
APPLICANT: Yeung, Siu-mei H.;
APPLICANT: Yeung, Siu-mei H.;
APPLICANT: Exley, Mark A.;
APPLICANT: Exley, Mark A.;
APPLICANT: Powers, Steven P.
TITLE OF INVENTION: Japanese Cedar Pollen
NUMBER OF SEQUENCES: 261 62, Application US/08467023 5. 6090386 Pollock, Joanne; ImmuLogic Pharmaceutical Corporation, Inc Irwin J.;

025.6 USD2 (IMI-028CPD2)

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-467-023-62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-467-023-2
                                                                                                            ş
RESULT 3
US-08-467-023-95
                                                                           밁
                                                                                                                                                                                                                           US-08-467-023-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity Matches 37; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 2, Application US/08467023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Patent No.
                                                                                                                                                    Matches
                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Griffe
APPLICANT: Polloc
                                                                                                                                                                                                                                                                                                                      TELEFAX: (617) 227-5941 INFORMATION FOR SEQ ID NO: 2: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Brauer, Andrew;
APPLICANT: Exley, Mark A.;
APPLICANT: Powers, Steven P.
TITLE OF INVENTION: Allergenic Proteins And Peptides From
TITLE OF INVENTION: Japanese Cedar Pollen
NUMBER OF SEQUENCES: 261
                                                                                                                                                                                                                                         TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 025.6 USD2 (IMI-028CPD2)
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: December 6, 1994 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE: Ploppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Polania
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/08 FILING DATE: June 6, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET:
                                                                           87 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI 138
                                                                                                                                                                                                                                                                                  TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                              73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                   Match 26.4%;
Local Similarity 71.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                      REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI 57
                                                                                                                                                                                                                                                                                                  LENGTH:
                                                                                                                                                    37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Waltham
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Jane E. Remillard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                610 Lincoln St
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pollock,
                                                                                                                                                                                                                                                                                                      374 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kuo, Mei-Chang;
Yeung, Siu-mei H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bond, Julian F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Garman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Griffeth, Irwin J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PatentIn Release #1.0, Version #1.25
                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ImmuLogic Pharmaceutical Corporation,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26.4%;
71.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Richard D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Joanne;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08/350,225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US/08/467,023
                                                                                                                                                                                                                                                                                                                                                                                                                                  38,872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4; Mismatches 11; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 188; DB 3; Length 60; Pred. No. 1.5e-17;
                                                                                                                                                  4; Mismatches
                                                                                                                                                                     Score 188; DB 3; Length 374; Pred. No. 1.9e-16;
                                                                                                                                                      11; Indels
                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                        ٥,
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                         ; MOLECULE TYPE: protein US-08-467-023-95
                                                                                                                                                                                                            US-08-467-023-97
                                                                                                                                                                                                                               RESULT 4
                                                                                                                                                              ; Patent No. 609038
; GENERAL INFORMAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 95, Application US/08467023
                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                           Sequence 97,
                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX: (617) 227-5941 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Powers, Steven P.
TITLE OF INVENTION: Allergenic Proteins Ar
TITLE OF INVENTION: Japanese Cedar Pollen
NUMBER OF SEQUENCES: 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: Jane E. Remillard
REGISTRATION NUMBER: 38,872
REFERENCE/DOCKET NUMBER: 02:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: June 6,
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
LENGTH: 367 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                             APPLICANT:
                                                                                                              APPLICANT:
APPLICANT:
                                                APPLICANT:
                                                                                                                                              APPLICANT:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                             87 KALWIIFSQNMNIKLKMPLYVÄGHKTIDGRGADVHLGNGGPCLFMRKVSHVI 138
                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH:
                                                                                                                                                              INFORMATION:
                                                                                                                                                                                                                                                                                                                                               29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Waltham
                                                                                                                                                                                                                                                                                                                                                                                                                                                         amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ¥
                                                                                                                                                                                              Application US/08467023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            610 Lincoln St
                                                                                            Griffeth, Irwin J.;
Pollock, Joanne;
Bond, Julian F.;
Garman, Richard D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Brauer, Andrew;
Exley, Mark A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bond, Julian F.; Garman, Richard D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pollock, Joanne;
                             Kuo, Mei-Chang;
Yeung, Siu-mei H.;
Brauer, Andrew;
Exley, Mark A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kuo, Mei-Chang;
Yeung, Siu-mei H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Griffeth,
                                                                                                                                                                                                                                                                                                                                                Conservative
            Powers, Steven P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ImmuLogic Pharmaceutical Corporation, Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (617) 227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              December
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          June 6, 1995
                                                                                                                                                                                                                                                                                                                                                         21.1%; 55.8%;
Allergenic Proteins And Peptides From
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Allergenic Proteins And Peptides From
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Irwin J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             08/350,225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/08/467,023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              025.6 USD2 (IMI-028CPD2)
                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                             Score 150; DB 3;
Pred. No. 1.9e-11;
9; Mismatches 14
                                                                                                                                                                                                                                                                                                                                                                                 DB 3; Length 367;
                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                Gaps
```

```
US-08-467-023-134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-467-023-97
                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 134, Application US/08467023 Patent No. 6090386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION: ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/08/4
FILING DATE: June 6, 1995
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/350,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: (617) 227-5941 INFORMATION FOR SEQ ID NO:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM-PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                    APPLICANT: Kuo, Mei-Chang;
APPLICANT: Yeung, Siu-mei H.;
APPLICANT: Brauer, Andrew;
APPLICANT: Exley, Mark A.;
APPLICANT: Powets, Steven P.
TITLE OF INVENTION: Allergenic Proteins And Peptides From NUMBER OF SEQUENCES: 261
                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
LENGTH: 370 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Jane E. Remillard
REGISTRATION NUMBER: 38,872
REFERENCE/DOCKET NUMBER: 025.6 USD2 (IMI-028CFD2)
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: December 6, 1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                  ADDRESSEE: Immuno-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION:
                                                                     COUNTRY: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87 KALWIIFSONMNIKLKWPLYVAGHKTIDGRGADVHLGNGGPCLFWRKVSHVI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02154
                                                                                                    MΑ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Waltham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MA
                                                                                    USA
                                                                                                                                                                                                                                                                                                             Bond, Julian F.;
Garman, Richard D;
                                                                                                                                                                                                                                                                                                                                              Griffeth, Irwin , Pollock, Joanne;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              610 Lincoln St
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                          ImmuLogic Pharmaceutical Corporation,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ImmuLogic Pharmaceutical Corporation, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Japanese Cedar Pollen
                                                                                                                                                                                                                                                                                                                                                             Irwin J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                08/350,225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08/467,023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    JA JA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 150; DB 3; Length 370; Pred. No. 1.9e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-467-023-187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-467-023-134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 187, Application US/08467023
Patent No. 6090386
GENERAL INFORMATION:
                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: IM PC compatible
OPERATING SYSTEM: PC_DOS/MS_DOS
SOFTWARE: Patentin Release #1.0, 1
CURRENT APPLICATION DATA:
APPLICATION UMBER: US/08/467,023
FILING DATE: June 6, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                CLASSIFICATION: 424
PRIOR APPLICATION DATA:
                                                                                                                                                                                    ZIP: 02154
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
APPLICANT:
APPLICATION NUMBER: 08/3 FILING DATE: December 6, ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                         APPLICANT: Powers, Steven P.
APPLICANT: Powers, Steven P.
TITLE OF INVENTION: Allergenic Proteins And Peptides From
TITLE OF INVENTION: Japanese Cedar Pollen
NUMBER OF SEQUENCES: 261
                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 514 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         273 ICGPGHGISIGSLGRENSRAEVSYVHVNGAKFIDTQNGL 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/350,225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   236 IDIFASKNEHLOKNTIGIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 91 MYIAGYKTFDG-----RRAEVSYVHVNGAKFIRRVDGI 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31 IDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGRRPLWIIFSGNMNIKLKMP 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "CLASSIFICATION:
                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Jane E. Remillard
REGISTRATION NUMBER: 38,
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/08/467,023
FILING DATE: June 6, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41;
                                                                                                                                                                                                                                                                          Waltham
                                                                                                                                                                                                                                                        MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               amino acid
                                                                                                                                                                                                                                                                                         610 Lincoln St
                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                    Garman, Richard υ;
Kuo, Mei-Chang;
Yeung, Siu-mei H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           514 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Griffeth, Irwin J.;
Pollock, Joanne;
                                                                                                                                                                                                                                                                                                                                                                                                         Brauer, Andrew;
Exley, Mark A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bond, Julian F.;
Garman, Richard D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (617) 227-5941
                                                                                                                                                                                                                                                                                                  ImmuLogic Pharmaceutical Corporation, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    December
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20.9%;
                                08/350,225
                                                                                                                           Release #1.0, Version #1.25
                                                                                                  US/08/467,023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              38,872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 148.5; DB 3; Length 514;
Pred. No. 4.8e-11;
8; Mismatches 21; Indels 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              025.6 USD2 (IMI-028CPD2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         151 cm ort was 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----DDCVAIGTGSSNIVIEDL 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
```

2;

```
US-08-467-023-187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JS-08-467-023-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent No. 6090386
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 33,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: (617) 227-5941 INFORMATION FOR SEQ ID NO: 187:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REGISTRATION NUMBER: 38,872
REFERENCE/DOCKET NUMBER: 025.6 USD2 (IMI-028CPD2)
TELECOMMUNICATION INFORMATION:
                                                                                              TELEFAX: (617) 227-594
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 128 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE:
FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/467,023
FILING DATE: June 6, 1995
FILING DATE: June 6, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Powers, Steven P.
TITLE OF INVENTION: Allergenic Proteins And Peptides From
TITLE OF INVENTION: Japanese Cedar Pollen
NUMBER OF SEQUENCES: 261
                                                                                                                                                                                                                               CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION UMBER: 08/350,225
FILING DATE: December 6, 1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                   REGISTRATION NUMBER: 38,872
REFERENCE/DOCKET NUMBER: 021
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 20 amino acids
MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98 WKNNRIWLQFAKLTGFTLMGK 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      52 WKNNRIWLOFAKLTGFTLMGR 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Jane E. Remillard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 610 L1
CITY: Waltham
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                  TYPE: amino acid TOPOLOGY: linear
                                                                                                                                                                                                                 NAME: Jane E. Remillard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1: 128 amino acids amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3, Application US/08467023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E: ImmuLogic Pharmaceutical Corporation, Inc 610 Lincoln St
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16.2%; Score 115; DB 3; Length 128; ilarity 95.2%; Pred. No. 1.8e-07; Conservative 1; Mismatches 0; Indels
                                                         20 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pollock, Joanne;
Bond, Julian F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kuo, Mei-Chang;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Griffeth, Irwin J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Exley, Mark A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Yeung, Siu-mei H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                    (617)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               peptide
internal
                                                                                                                  227-5941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Richard D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Andrew;
                                                                                                  33:
                                                                                                                                                                            025.6 USD2 (IMI-028CPD2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>.</u>
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-467-023-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-467-023-188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 8
                                                                                                                                                                                                                                                                           APPLICATION: 424
FILING DATE: June 6, 1775
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/350,225
APPLICATION NUMBER: 08/350,225
FILING DATE: December 6, 1994
ATTORNEY/AGENT INFORMATION:
NAME: Jane B. Remillard
REGISTRATION NUMBER: 38,872
REFERENCE/DOCKET NUMBER: 025.6 USD2 (IMI-028CPD2)
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
먉
                                                                                                                                              US-08-467-023-188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 188, Appearent No. 60903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                      Matches
                                                                                       Best Local Similarity
                                                                                                        Query Match
                                                                                                                                                                                                                                                                       TELEFAX: (617) 227-594
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FRAGMENT TYPE: internal
                                                                                                                                                             TOPOLOGY: lir
MOLECULE TYPE:
FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/467,023
FILING DATE: June 6, 1995
FILING DATE: June 6, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: POWETS, Steven P.
TITLE OF INVENTION: Allergenic Proteins And Peptides From
TITLE OF INVENTION: Japanese Cedar Pollen
NUMBER OF SEQUENCES: 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 127 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            78 IFSGNMNIKLKMPMYIAGYK 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14.8%; Score 105; DB 3; Local Similarity 100.0%; Pred. No. 2.7e-07; Local Similarity 100.0%; Mismatches no.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 IFSGNMNIKLKMPMYIAGYK 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                      TYPE:
83 IDIFASKNEHLOKNTIGTG 101
                                  31 IDIFASKNFHLOKNTIGTG 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Waltham
                                                                                                                                                                                                                  amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          610 Lincoln St
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/08467023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Garman,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Brauer, Andrew;
Exley, Mark A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kuo, Mei-Chang;
Yeung, Siu-mei H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bond, Julian F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pollock, Joanne;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Griffeth, Irwin J.;
                                                                      Conservative
                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ImmuLogic Pharmaceutical Corporation, Inc
                                                                                                                                                                 peptide
internal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Richard D;
                                                                      13.9%; Score 99; DB 3;
100.0%; Pred. No. 2.2e-0
tive 0; Mismatches
                                                                                           2.2e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 20
                                                                                                            Length 127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
US-08-290-448A-72
                                                                                                                                                                                                                                                                                      RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; MOLECULE TYPE: protein US-08-290-448A-72
                                                                                                                                                                                          Sequence 72, Application US/08290448A Patent No. 5698204
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 26; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/290,448A
FILLING DATE: August 15, 1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/529,951
FILING DATE: May 29, 1990
APPLICATION NUMBER: US 07/325,365
FILING DATE: March 17, 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-290-448A-72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
APPLICANT: Rogers,
APPLICANT: Klapper
APPLICANT: Rafnar,
APPLICANT: Kuo, Me
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 72, Application US/08290448A Patent No. 5676954
                                           APPLICANT: Klapper, David G.
APPLICANT: Klapper, David G.
APPLICANT: Rafnar, Thorunn
APPLICANT: Kuo, Mei-chang
TITLE OF INVENTION: Allergenic Proteins From Ragweed and Uses
NUMBER OF SEQUENCES: 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (617)227-5941
INFORMATION FOR SEQ ID NO: 72:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION: TELEPHONE: (617)227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:

NAME: Amy E. Mandragouras

REGISTRATION NUMBER: 36,207

REFERENCE/DOCKET NUMBER: INI
                                                                                                                                                                                                                                                                                                                                      164 VNPGGLIKSNDGPAA 178
                                                                                                                                                                                                                                                                                                                                                                                122 ----GIIAAYQNPAS 132
                                                                                                                                                                                                                                                                                                                                                                                                             104 RPLWIIFERDMVIRLDKEWVVNSDKTIDGRGAKVEIINAGFTLNGVKNVIIHNINMHDVK 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Kuo, Mei-chang
TITLE OF INVENTION: Allergenic Proteins From Ragweed and Uses
NUMBER OF SEQUENCES: 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH:
TYPE: a
                                                                                                                                                                                                                                                                                                                                                                                                                                                  73 RPLWIIFSGNMNIKLKMPMYIAGYKTEDGRRAEVSYVH----VNGAK--FIRRVD----- 121
                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            02109-1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Boston
3: LAHIVE & COCKFIELD
60 State Street, suite 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       387 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60 State Street, suite 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rogers, Bruce
Klapper, David G.
Rafnar, Thorunn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13.9%; Score 98.5; DB 1; Length 387; 34.7%; Pred. No. 0.00012; ative 12; Mismatches 22; Indels 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IMI-018CN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-175-069A-72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-290-448A-72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Patent No.
                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: Rogers, Bruce
APPLICANT: Klapper, David G.
APPLICANT: Kannar, Thorunn
APPLICANT: Kuo, Mei-chang
TITLE OF INVENTION: Allergenic Proteins From Ragweed and Uses
NUMBER OF SEQUENCES: 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: (617)227-5941
INFORMATION FOR SEQ ID NO: 72:
SEQUENCE CHARACTERISTICS:
                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM FC compatible
COMPUTER: IBM FC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION UMBER: US/08/175,069A
FILING DATE: December 29, 1993
PRIOR APPLICATION DATA:
APPLICATION DATA:
                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD, LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE/DOCKET NUMBER: IM
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/08/290,448A
FILING DATE: AUGUST 15, 1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/529,951
FILING DATE: May 29, 1990
APPLICATION NUMBER: US 07/325,365
FILING DATE: March 17, 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Amy E. Mandragouras
REGISTRATION NUMBER: 36,20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          164 VNPGGLIKSNDGPAA 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                122 ----GIIAAYQNPAS 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            104 RPLWIIFERDMVIRLDKEMVVNSDKTIDGRGAKVEIINAGFTLNGVKNVIIHNINMHDVK 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
APPLICATION NUMBER: US 07/529,951
                                                                                                                                                                                                                                                  CITY: Boston
STATE: Massa
                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                    STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73 RPLWIIFSGNWNIKLKWPMYIAGYKTFDGRRAEVSYVH----VNGAK--FIRRVD----- 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: Boston
STATE: Massac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          72, Application US/08175069A
5. 5776761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26;
                                                                                                                                                                                                      02109-1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    02109-1875
                                                                                                                                                                                                                                                Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid
                                                                                                                                                                                                                                                                                  60 State Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Massachusetts
                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            387 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13.9%; Score 98.5; DB 1; Length 387; 34.7%; Pred. No. 0.00012;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36,207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22; Indels 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
```

ω -

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-175-069A-72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-461-939B-72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 26; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                  PRILING DATE:
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: US 08/464,000
APPLICATION NUMBER: US 08/290,448
APPLICATION NUMBER: US 08/290,448
PTILING DATE: 15-AUG-1994
TTILING DATE: 15-AUG-1994
TTILING DATE: 15-AUG-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: (617)227-5941
INFORMATION FOR SEQ ID NO: 72:
SEQUENCE CHARACTERISTICS:
LENGTH: 387 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: March 17, 1 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Kuo, Mei-chang
TITLE OF INVENTION: Methods For Treating Sensitivity To A
TITLE OF INVENTION: Protein Allergen Using Peptides Which Inloude A T Cell Epitopo
                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD, LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        104 RPLWIIFERDMVIRLDKEMVVNSDKTIDGRGAKVEIINAGFTLNGVKNVIIHNINMHDVK 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: May 29, 100 07/325,365
APPLICATION NUMBER: US 07/325,365
PITTING DATE: March 17, 1989
NAME: Amy E. Mandragouras
REGISTRATION NUMBER: 36,207
REGERENCE/DOCKET NUMBER: IMI-018CNDV
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
                                                                                                      FILING DATE: 15-AUG-1994
APPLICATION NUMBER: US 07/529,951
FILING DATE: 29-MAY-1990
APPLICATION NUMBER: US 07/325,365
FILING DATE: 17-MAR-1989
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      164 VNPGGLIKSNDGPAA 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122 ----GIIAAYONPAS 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: IM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVH----VNGAK--FIRRVD----- 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Match 13.9%; Score 98.5; DB 1; Length 387; Local Similarity 34.7%; Pred. No. 0.00012;
                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Amy E. Mandragouras
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02109-1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/08461939B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28 State Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Klapper, David G.
Rafnar, Thorunn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rogers, Bruce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (617)227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IMI-018DV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22; Indels 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
--
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-461-939B-72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-464-000-72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 13
US-08-464-000-72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 72,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (617)742-4214
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                FILING DATE: 15-AUG-1994
APPLICATION NUMBER: US 07/529,951
FILING DATE: 29-MAX-1990
APPLICATION NUMBER: US 07/325,365
FILING DATE: 17-MAR-1989
ATTORNEY/AGENT INFORMATION:
NAME: Amy E. Mandragouras
REGISTRATION NUMBER: 36,207
                                                                                                            TELEFAX: (617)227-594. INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Kuo, Mei-chang
TITLE OF INVENTION: Allergenic Peptides from Ragweed Pollen
NUMBER OF SEQUENCES: 93
CORRESPONDENCE ADDRESS:
ADDRESSE: LAHIVE & COCKFIELD, LLP
STREET: 60 State Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            164 VNPGGLIKSNDGPAA 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122 ----GIIAAYQNPAS 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104 RELWIIFERDMVIRLDKEMVVNSDKTIDGRGAKVEIINAGFTLNGVKNVIIHNINMHDVK 163
                                                                                                                                                              REFERENCE/DOCKET NUMBER: IM TELECOMMUNICATION INFORMATION:
                   MOLECULE TYPE: protein
                                                                                         SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73 RPIWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVH----VNGAK--FIRRVD----- 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
les 26; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE:
                                    TYPE: amino acid TOPOLOGY: linear
                                                                                                                                             TELEPHONE:
                                                                        ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               02109-1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/08464000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 387 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13.9%;
nilarity 34.7%;
Conservative 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Klapper, David C
Rafnar, Thorunn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rogers, Bruce
                                                                          387 amino acids
                                                                                                              (617) 227-5941
10 10 NO: 72:
                                                                                                                                                                                                                                                                                                                                                                                                                                       PatentIn Release #1.0, Version #1.25
                                         linear
                                                                                                                                                 (617) 227-7400
                                                                                                                                                                                                                                                                                                                                                                                      05-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  David G.
                                                                                                                                                                                                                                                                                                                                                   US 08/290,448
                                                                                                                                                                                                                                                                                                                                                                                                         US/08/464,000
                                                                                                                                                                                              36,207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             72:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 98.5; DB 4; Length 387; Pred. No. 0.00012;
                                                                                                                                                                                       IMI-018CN2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
••
```

Best Local Similarity Matches 26; Conserv

Conservative

13.9%; Score 98.5; DB 4; Length 387; 34.7%; Pred. No. 0.00012; tive 12; Mismatches 22; Indels 1:

Indels 15;

Query Match

```
US-08-290-448A-76
; Sequence 76, Application US/08290448A
; Patent No. 5698204
                                                            RESULT 15
                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                              US-08-290-448A-76
                                                                                                                                                                                                                                    Matches 31; Conservative
                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-290-448A-76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 76, Appli
Patent No. 5676954
                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (617)227-5941 INFORMATION FOR SEQ ID NO: 76:
                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY AGENT INFORMATION:
NAME: AMY E. Mandragouras
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: IMI-018CN
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR DATE: August 15, 1994

APPLICATION DATA: APPLICATION NUMBER: US 07/529,951

FILING DATE: May 29, 1990

APPLICATION NUMBER: US 07/325,365

FILING DATE: March 17, 1989
                                                                                           121 KNDMVININQELVVNSDKTIDGRGVKVBI--INGGLTLMNVKNII 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy
                                                                                                                           80 SGNMNIKIKMEMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                             61
                                                                                                                                                                                          TITLE OF INVENTION: Allergenic Proteins From Ragweed and Uses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: August
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          164 VNPGGLIKSNDGPAA 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122 ----GIIAAYQNPAS 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            104 ŘÉLWIÍFERDMVÍRLDKEMVVNSDKTIDGRGÁKVEIINAGFTLNGVKNVIÍHNINMHDVK 163
                                                                                                                                                                                                                                                                                                                                                                            LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73 RPIWIIFSGNMNIKIKMPMYIAGYKTFDGRRAEVSYVH----VNGAK--FIRRVD----- 121
                                                                                                                                                         WENNRQALADCAQGFAKGTYGGKWGDVYTVTSNLDDDVANPKEGTLRFAAAQNRPLWIIF 120
                                                                                                                                                                                                                                                                                                                                            amino acid
)GY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    02109-1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/08290448A
                                                                                                                                                                                                                                                                                                                                                                            397 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60 State Street, suite 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Klapper, David G
Rafnar, Thorunn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rogers, Bruce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kuo, Mei-chang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LAHIVE & COCKFIELD
                                                                                                                                                                                                                        13.6%; Score 97; DB 1; Length 397;
29.5%; Pred. No. 0.0002; Indels 34; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     David G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08/290,448A
```

8 Ş Ś

문

ω ••

```
Search completed: April 23, 2003, 18:05:34 Job time: 17 Becs
                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                             US-08-290-448A-76
                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/08/290,448A
FILLING DATE: August 15, 1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/529,951
FILLING DATE: May 29, 1990
APPLICATION NUMBER: US 07/325,365
FILLING DATE: March 17, 1989
ATTORNEY/AGENT INFORMATION:
NAME: Amy E. Mandragouras
REGISTRATION NUMBER: 36,207
                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: IN:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
WEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PAtentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                   121 KNDMVÍNÍNQELVVNSDKTIDGRGVKVEI--INGGLTLMNVKNÍÍ 163
                                                                                                         80 SGNMNIKLKMEMYIAGYKTEDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                 61 WENNRQALADCAQGFAKGTYGGKWGDYYTVTSNLDDDVANPKEGTLRFAAAQNRĖLWIIF 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Rogers, Bruce
APPLICANT: Klapper, David G.
APPLICANT: Rafnar, Thorunn
APPLICANT: Kuo, Mei-chang
TITLE OF INVENTION: Allergenic Proteins From Ragweed and Uses
                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                        31; Conservative
                                                                                                                                                                                                                                                                                                                                                                                    amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02109-1875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Boston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                     397 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60 State Street, suite 510
                                                                                                                                                                                                                                                                                                                                                                                                                                                              (617) 227-5941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LAHIVE & COCKFIELD
                                                                                                                                                                                                                            13.6%; Score 97; DB 1; Length 397; 29.5%; Préd. No. 0.0002; ative 7; Mismatches 33; Indels
                                                                                                                                                                                                                         34; Gaps
```

			d
1		1	
		٠	
h			

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0% Maximum Match 100%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein - protein search, using sw model
                                                                                                                                                                                        ö
                                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                       Score
                                      73
73
73
73
73
73
73
73
73
74
75
76
77
71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 seq length: 0
seq length: 2000000000
                                                                                                                                                                                    Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                         SPTREMBL 21:*

1: sp_archea:*

2: sp_bacteria:*
                                                                                                                                                                                                 Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BLOSUM62
                                      10:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-142-524D-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          April 20, 2003, 12:56:55; Search time 67:5789 Seconds (without alignments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Listing first 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MKVTVAFNQFGPNRRVFIKR.....IASRRVDGIIAAYQNPASWK 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Copyright
                                                                                                                                                                                                                                                                              sp_plant:*
sp_vodent:*
sp_virus:*
sp_vertebrate:*
sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                      sp_phage: *
                                                                                                                                                                                                                                                                                                                                                                                                                         sp_human:*
                                                                                                                                                                                                                                                                                                                                                                                sp_organelle:*
                                                                                                                                                                                                                                                                                                                                                                                         sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                     mammal:*
                                                                                                                                                                                                                                                                                                                                                                                                               invertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                                                     fungi:*
     367
367
367
367
367
367
367
44
45
55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.4 p5 4578 (c) 1993 - 2003 Compugen Ltd.
      10
16
                                      10
10
10
10
10
10
10
              Q8RUR1
Q9FY19
Q9OYQ5
Q9AHF2
Q9KDQ3
     Q93S55
                                                                                                                                                                                      H
                                                                            Q9LLT1
Q9LLT1
Q9M4S6
Q9M4S5
Q9M4S4
Q9M4S3
Q9M4S3
Q9M4S3
Q9M4S3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        summaries
                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (without alignments)
243.919 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               671580
093x51 juniperus o
093x16 cupressus a
08rurl cryptomeria
09fy19 juniperus a
090yq5 ictalurus p
09ahf2 agrobacteri
065456 arabidopsis
09kdq3 bacillus ha
                                                                                             Q9m486 cupressus s
Q9m485 cupressus s
Q9m483 cupressus s
Q9m483 cupressus s
Q9m482 cupressus s
                                                                                                                                                                                 Description
                                                                                                                                                   Q911t2
Q911t1
                                                                                                                                                  juniperus v
juniperus v
```

ALIGNMENTS

```
RESULT 2
Q9LLT1
ID Q9LL
AC. Q9LL
DT 01-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 1
Q9LLT2
ID Q9LLT
AC Q9LL
AC Q9LL
DT 01-0
DT 01-0
DT 01-J
OS Juni
OC Euka
OC Euka
OC Euka
OC Euka
OC Euka
III
OC I
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Q9LLT1 PRELIMINARY; PRT;
Q9LLT1;
01-OCT-2000 (TrEMBLrel. 15, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Midoro-Horiuti T.M., Goldblum R.M., Brooks E.G.,
"Identification of mutations in the genes for the eastern red cedar (Juniperus virginiana).";
Clin. Exp. Allergy 31:771-778 (2001).
EMBL, AP151427; AAF80164.1; -
InterPro; IPR002022; Amb allergen.
Pfam; PF00544; pec lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
SEQUENCE 367 AA; 39768 MW, 0A6AC2F1BAF89586 CR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9LLT2;
01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-OCT-2000 (TrEMBLrel. 21, Last annotation update)
01-UNN-2002 (TrEMBLrel. 21, Last annotation update)
Pollen major allergen 1-2.
Unniperus virginiana (Eastern red cedar).
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. MEDLINE=21315424; PubMed=11422137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9LLT2
                                                                                                                                                                                                                                                                                                         234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=39584;
                                                                                                                                                                                                                                                                                                                                                           1 MKVTVAFNQFGFNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                MKVTVAFNQFGPNAGQRMPRARYGLVH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18.0%;

 Mismatches

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 73; DB 10; Length 367; Pred. No. 2.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0A6AC2F1BAF89586 CRC64;
                                                                                                367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A
                                                                                                                                                                                                                                                                                                                                                                                                                                                       9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pollen allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                               ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
RESULT 3
Q9M4S6
RESULT 4
Q9M4S5
ID Q9M4
AC Q9M4
AC Q9M4
DT 01-C
DT 01-C
DT 01-G
CUPS
GN CUPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DT RT RT DR 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A DE REP PER LE REP LE RE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                      01-OCT-2000
01-OCT-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=21315424; PubMed=11422137; Midoro-Horiuti T.M., Goldblum R.M., Brooks E.G.; "Identification of mutations in the genes for the eastern red cedar (Juniperus virginiana)."; Clin. Exp. Allergy 31:771-778(2001). EMBL; AF151429; AAF80166.1; -. InterPro; IFR00202; Amb_allergen. Pfam; pF00544; pec lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

Monsalve R.I., Villalba M., Rodriguez R.;

Monsalve R.I., Villalba M., Rodriguez R.;

"Cloning and expression of Cup s 1, the major allergen of Cupressus sempervirens.";

of Cupressus sempervirens.";

submitted (APR-2000) to the EMBL/GenBank/DDBJ databases.

EMBL; AP257491; AAF72625.1;

EMBL; AP257491; AAF72625.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pollen major allergen 1-1.
Juniperus virginiana (Eastern red cedar).
Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta,
Spermatophyta, Coniferopsida, Coniferales, Cupressaceae, Juniperus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=39584;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-OCT-2000 (TrEMBLrel. 15, Last 01-JUN-2002 (TrEMBLrel. 21, Last
                                  Cup s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Viridiplantae; Stre
Spermatophyta; Coniferopsida;
NCBI_TaxID=13469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-OCT-2000 (TrEMBLrel. 15,
01-OCT-2000 (TrEMBLrel. 15,
01-JUN-2002 (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR002022; Amb allergen. Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cupressus sempervirens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CUPS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cup s 1 pollen allergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9M4S6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q9M4S6
   Cupressus sempervirens
                                                                                                                                                                                                                   Q9M4S5;
                                                                                                                                                                                                                                                         Q9M4S5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           234 MKVTVAFNQFGPNAGQRMPRARYGLVH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                           234 MKVTVÁFNQFGPNAGQRMPRARYGLVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MKVTVAFNOFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MKVTVAFNOFGPNRRVFIKRVSNVIIH 27
                                                                    s 1 pollen allergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   367 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               367 AA;
                                                                                                      (TrEMBLrel. 15, (TrEMBLrel. 15, (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       39708 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               39835 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Streptophyta; Embryophyta; Trac
ida; Coniferales; Cupressaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 2.3;
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                                                                      Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 73; I
Pred. No. 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DCBD1981A74E4711 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B4E9C60108C2C5A3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                           260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the major allergen of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 367
                                                                                                                                                                                                                                                         367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 10; Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ٠
ن
                                                                                                                                                                                                                                                         A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pollen allergens of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cupressus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
Q9M4S4
ID Q9
RESULT 6
29M43
ID Q9M4
AC Q9M4
AC Q9M4
AC Q9M4
CDT 01--CDT 01--CDT 01--CDT
CDT CUP
CDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00544; pec
PRINTS; PR00807; AV
SEQUENCE 367 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of Cupressus sempervirens.";
Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases
EMBL; AF257492; AAF72626.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cupressus
NCBI_TaxID=13469;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of Cupressus sempervirens.";
submitted (APR-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AF257493; AAF72627.1;
InterPro; IPR002022; Amb allergen.
Pfam; PF00544; pec lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CUPS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q9M4S4
Q9M4S4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Monsalve R.I., Villalba M., Rodri "Cloning and expression of Cup s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 [1]
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.

The sequence of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Spermatophyta; Co
NCBI_TaxID=13469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-OCT-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                              Q9M4S3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Monsalve R.I., Villalba M., KOULLYUES A., emajor allergen of the pollen "Cloning and expression of Cup s 1, the major allergen of the pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cupressus sempervirens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
   SEQUENCE FROM N.A
                                                      Spermatophyta; Co
NCBI_TaxID=13469;
                                                                                                                          Cupressus sempervirens.
Eukaryota; Viridiplantae;
                                                                                                                                                                                                  CUPS1.
                                                                                                                                                                                                                                                                  01-JUN-2002
                                                                                                                                                                                                                                                                                                                                   01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           234 MKVTVAFNQFGPNAGQRMPRARYGLVH 260
                                                                                                                                                                                                                                                                                              01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          234 MKVTVAFNOFGPNAGQRMPRARYGLVH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MKVTVAFNOFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MKVTVAFNQFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              в 1 pollen allergen.
                                                                                                                                                                                                                             s 1 pollen allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR002022; Amb_allergen.
0544; pec_lyase; 1.
R00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Viridiplantae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (TrEMBLrel.) (TrEMBLrel.) (TrEMBLrel.
                                                                                                                                                                                                                                                            0 (TrEMBLrel. 15, 0 (TrEMBLrel. 15, 2) (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         367 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             idiplantae; Streptophyta; Embryophyta; Tracheophyta;
Coniferopsida; Coniferales; Cupressaceae; Cupressus
                                                                                           Coniferopsida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39894 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18.0%;
55.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15,
15,
21,
                                                                                                                                 Streptophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rodriguez R.;
Cup s 1, the major allergen of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
--
                                                                                                                                                                                                                                                                                              Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                  Last annotation
                                                                                                                                                                                                                                                                                                                                   Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 73; I
Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 73;
Pred. No.
                                                                                                  Coniferales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5D56FC0E3263B741 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             974D3011D74E3D6E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                 sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     367
                                                                                                                                                                                                                                                                                                                                                                                                    367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 10; Length 367;
                                                                                                                              Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                  Cupressaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cupressus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
RESULT 8
Q93X51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCORDANCE OF THE PROPERTY OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9M4S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SO DR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local (
TISSUE-POLLEN;
Iacovacci P., Di Felice G., Pini C.;
Iacovacci P. Di Felice G., Pini C.;
"Cloning of Juniperus oxycedrus major allergen.";
Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AJ293767; CAC48400.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Cloning and expression of Cup s 1, the major allergen of the Cloning and expression of Cup s 1, the major allergen of the of Cupressus sempervirens.";

Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases.

EMBL; AF357495; AAF77659-1; -.

InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
PFRINTS; PR00807; AMBALLERGEN.
SEQUENCE 367 AA; 39819 MW; AE7E055A61C07A53 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                           Q93X51;
                                                                                                                                                                                                                                                                                                                          01-DEC-2001 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
01-MAR-2002 (TrEMBLrel.
                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                   Juniperus oxycedrus (Prickly juniper).
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus.
NCBI_TaxID=69008;
                                                                                                                                                                                                                                                                                      JUN O 1.
                                                                                                                                                                                                                                                                                                        Putative allergen jun o 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cupressus sempervirens.
Eukaryota; Viridiplantae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q9M4S2;
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CUPS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-OCT-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=13469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Spermatophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9M4S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; AF257494; AAF72628.1; -...
InterPro; IPR002022; Amb allergen.
Pfam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of Cupressus sempervirens.";
Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       234 MKVTVAFNOFGPNAGQRMPRARYGLVH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Monsalve R.I., Villalba M., Rodriguez R.; "Cloning and expression of Cup s 1, the major allergen of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        234 MKVTVAFNQFGPNAGQRMPRARYGLVH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 MKVTVAFNQFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MKVTVAFNOFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s 1 pollen allergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (TrEMBLrel. 15, (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      367 AA; 39832 MW; B5DFBF5A61C07A53 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Coniferopsida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18.0%; Score 73; 55.6%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18.0%;
                                                                                                                                                                                                                                                                                                                             20,
                                                                                                                                                                                                                                                                                                                                                  19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Streptophyta; Embryophyta; Tracheophyta;
ida; Coniferales; Cupressaceae; Cupressus.
                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
••
                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 73; DB 10;
Pred. No. 2.3;
                                                                                                                                                                                                                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                             367 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              367 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 10; Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
```

```
RESULT 9
Q93XL6
                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                Q8RUR1
                                                                                                                                                                                                                                                                                                                                                                                                                                             SQ PTW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                         Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                           SIGNAL
                                                      Futamura W., Shinohara K.;
"Isolation and characterization of cDNAs encoding major allergen Cry
1 from Cryptomeria japonica pollen.";
Submitted (MAR-2002) to the EMBL/GenBank/DDBJ databases.
      SEQUENCE
                                                                                                                                                           Cryptomeria japonica (Japanese cedar).
Cryptomeria japonica (Japanese cedar).
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cryptomer
                                                                                                                                                                                                                               01-JUN-2002 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                        Cry j 1 precursor.
CRY J 1.1 OR CRY J 1.2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Signal.
SIGNAL
                                                  EMBL; AB081310; BAB86287.1; -.
                                                                                                                                                                                                                                                                        Q8RUR1;
                                                                                                                                                                                                                                                                                   Q8RUR1
                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cupressus arizonica.
Eukaryota; Viridiplantae; Stre
Spermatophyta; Coniferopsida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-DEC-2001 (TrEMBLrel. 19, Created)
01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Putative allergen Cup a 1 precursor.
                                                                                                                           rissue=pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
SEQUENCE 367 AA; 39808 MW; 5D28204DBFD1B9D7 CRC64;
                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; AJ278498; CAC37790.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Butteroni C., Di Felice G., Pini C., "Cloning of Cupressus Arizonica major allergen."; Submitted (FEB-2002) to the EMBL/GenBank/DDBJ dat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE = POLLEN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CUP A 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q93XL6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q93XL6
                                                                                                                                                                                                                                                                                                                                          234 MKVTVAFNOFGPNAGORMPRARYGLVH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=49011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         234 MKVTVAFNQFGPNAGQRMPRARYGLVH 260
                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                 1 MKVTVAFNQFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MKVTVAFNQFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            l Similarity
                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
   374 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                         22
367 AA;
                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                       21 PO
367 PO
39809 MW;
                374
  40720 MW;
                                                                                                                                                                                                                                                                                                                                                                                                   18.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18.0%;
                                                                                                                                                                                                                               21,
21,
21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptophyta; Embryophyta; Tracheophyta; ida; Coniferales; Cupressaceae; Cupressus.
                                                                                                                                                                                                                             Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                       Created)
                                                                                                                                                                                                                                                                                                                                                                                         ω
••
                                                                                                                                                                                                                                                                                                                                                                                                    Score 73;
Pred. No.
               CRY J 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          w
••
                         POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
PUTATIVE ALLERGEN CUP A 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 73; 1
Pred. No. 2
                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                        AFF97260423A9F28 CRC64;
90D0085D24BF2BD4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                               374 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                367 AA
                                                                                                                                                                                                                                                                                                                                                                                                                 DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 10; Length 367;
                                                                                                                                                                 Cupressaceae; Cryptomeria.
                                                                                                                                                                                                                                                                                                                                                                                         9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9,
                                                                                                                                                                                                                                                                                                                                                                                                              Length 367;
                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
     Q90YQ5
ID Q90YQ
AC Q90YQ
AC Q90YQ
DT 01-DE
DT 01-JU
DE 1ctal
OC Eukaz
OC Ictal
OC Ic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=20403896; PubMed=10944464;
Yokoyama M., Miyahara M., Shimizu K., Kino K., Tsi
"Purification, Identification and cDNA cloning of
major allergen of mountain cedar pollen.";
Biochem. Biophys. Res. Commun. 275:195-202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Juniperus ashei (Ozark white cedar).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01.MAR-2001 (TrEMBLrel. 16, Created)
01.MAR-2001 (TrEMBLrel. 16, Last sequence update)
01.UNN-2002 (TrEMBLrel. 21, Last annotation updat
Pollen major allergen 2 protein precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9FY19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9FY19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR000743; GH28.
InterPro; IPR000408; Reg_chr_condens.
Pfam; PF00295; Glyco_hydro_28; 1.
PROSITE; PS00502; POLYGALACTURONASE; UNKNOWN_PROSITE; PS00626; RCC1_2; UNKNOWN_1.
Ccll wall; Glycosidase; Hydrolase; Signal.
Karsi A., Patterson A., Feng J., Liu Z.J.;
"Transhalational machinery of channel catfish: I. A transcapproach to the analysis of 32 40S ribosomal protein generation.";
Submitted &JUL-2001) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                  Q90YQ5;
01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
40S ribosomal protein S18.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE=MALE POLLEN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=13101;
                                                                                                                                                                                                                              Ictalurus punctatus (Channel catfish).
Eukaryota; Metazoa; Chordata; Craniata;
Actinopterygii; Neopterygii; Teleostei;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSSP; P26509; 1BHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       234 MKVTVAFNQFGPNCGQRMPRARYGLVH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q90YQ5
                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                   ctaluridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MKVTVAFNQFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chem. Biophys. Res. Commun. 275:195-202 (2000)
SIMILARITY: BELONGS TO FAMILY 28 OF GLYCOSYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POLYGALACTURONASES)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IDIFASKNFHLQKNTIGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IDIFASKRFBIEKCTIGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AJ404653; CAC05582.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          507 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                Ictalurus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17.5%;
55.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             55730 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17.5%;
73.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 71; I
Pred. No. 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 71; I
Pred. No. 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2B2E0AA5E958FE5A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               507
                                                                                                                                                                                                                                                                                                                                                                                                                                                       152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 10; Length 507;
                                                                                                                                                                                                                                            Ostariophysi; Siluriformes;
                                                                                                                                                                                                                                                                       Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                           .protein genes

    A transcriptomic

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tsunoo
of Jun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYDROLASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           н.;
а 2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the second
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                              and their
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ٥,
```

```
RESULT 13
Q9AHF2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SARRRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAELERS SOS S
                                                                                                                                                                                                                                                                                RESULT
065456
                                                                                                                                                                                                                                                                                                                                                                                     ъ
ф
                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; AF402827; AAK95201.1; -.
InterPro; IPR001892; Ribosomal_S13.
Pfam; PF00416; Ribosomal_S13; 1.
ProDom; PD001363; Ribosomal_S13; 1.
PROSITE; PS00646; RIBOSOMAL_S13; UNKNOWN_1.
RIBOSOMAL_Protein.
RIBOSOMAL_Protein.
RIBOSOMAL_S13; UPROBECTION PROFITER P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9AHF2 PRELIMINARY; PRT; 335 AA.
Q9AHF2;
01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence up
01-DEC-2001 (TrEMBLrel. 19, Last annotation
                                                                                                                                                                                                                                 065456;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Trott S., Bauer R., Knackmuss H.J., Stolz A.; "Genetic and biochemical characterization of an enantioselective "dentic and biochemical characterization of an enantioselective dentity and tunefactions strain d3."; Microbiology 147:1815-1824 (2001).

EMBL, AF315580, AAK28494.1; --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hypothetical 36.5 kDa protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Agrobacterium tumefaciens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR000620; DUF6. Pfam; PF00892; DUF6; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=21322708; PubMed=11429459;
Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Strophyta; Embryo
Spermatophyta; Magnoliophyta; eudicotyledons;
eurosids II; Brassicales; Brassicaceae; Arabio
                                                                                                                                                    01-AUG-1998 (TrEMBLrel. 07,
01-AUG-1998 (TrEMBLrel. 07,
01-DEC-2001 (TrEMBLrel. 19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=358;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rhizobiaceae; Rhizobium.
                                                                                                    Pectate lyase like protein. F1N20.180 OR AT4G22080.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hypothetical protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                     298 I--VSGIAIA
                                                                                                                                                                                                                                                                                                           14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10 FGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGT-----GRRISLKLTSGKIA 62
                                                                                                                                                                                                                                                                                                                                                                                                                                  63 SRRVDGIIAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6 PEKFOHILRVLNTNIDGRRKIAFAITAIK-----GVGRRYAHVVLRKADIDLSKRAGEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ASRRVDGIIAAYQNPASWK 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TEDEVERVVTIMONPROYK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FGPVATSFCFVVSAEV--GRRISVFAMSNLTLGVPIIGTAASIAFFGERLSLVSLSGFVL 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           335 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36505 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17.2%;
29.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17.1%;
38.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 70;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4;
                                                                                                                                                         Last sequence update)
Last annotation update)
                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 69.5;
Pred. No. 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 334C9B65A972C0C1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence update)
                                                                                                                                                                                                                                                                 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 13;
                               Embryophyta; Tracheophyta;
edons; core eudicots; Rosidae;
       Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----ISLKLTSGKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    w
--
```

NCBI_TaxID=3702;

ω ••

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
InterPro; IPRO03593; AAA ATPase.
InterPro; IPRO03593; ABC TranprtrTM.
InterPro; IPRO03139; ABC transportr.
Pfam; PF00664; ABC membrane; 1.
Pfam; PF00005; ABC tran; 1.
ProDom; PD000006; ABC transportr; 1.
ProDom; PD000006; ABC transportr; 1.
SMART; SM00382; AAA; T.
PROSITE; PS00211; ABC TRANSPORTER; UNKNOWN 1.
ATP-binding; Complete proteome.
SEQUENCE 674 AA; 75735 MW; 6AF94B058C84C957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                  Nucleic Acids Res. 28:4317-4331(2000).
EMBL; AP001511; BAB04877.1; -.
                                                                                                                                                                                                                                                                                          STRAIN=C-125 / JCM 9153;
MEDLINE=20512582; PubMed=11058132;
Takami H., Nakasone K., Takaki Y., Maeno G., Sasaki R., Maeui N.,
Fuji F., Hirama C., Nakamura Y., Ogasawara N., Kuhara S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BU Arabidopsis sequencing project;
Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AL022140; CAA18111.1;
EMBL; AL161556; CAB79163.1;
InterPro; IPR00202; Amb allergen.
InterPro; IPR00202; Amb allergen.
Pfam; PF00544; pec lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Bactleria; Firmicutes; Bacillus/Clostridium group; Bacillales;
Bacillaceae; Bacillus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ABC transporter (ATP-binding protein).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q9KDQ3;
01-OCT-2000
                                                                                                                                                                                                                                                      Complete genome sequence of the alkaliphilic bacterium Bacillus
                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=86665;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacillus halodurans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9KDQ3
                                                                                                                                                                                                                                                                                       forikoshi K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    316 -----KSNSKEVTKREVKG 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROSITE; PS00018; EF_HAND; UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Wedler H., Wambutt R., Mewes H.W., Lemcke K., Mayer K.F.X.;
Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (MAR-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      256 MKVTVAFNHFGFGLVERMPRVRRGYAHVANNRYDKWIMYAIGGSADPTIFSEGNYFIASD 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Schueller
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         45 TIGTGRRISLKLTSGKIASRRVDG 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MKVTVAFNQFGÞNRRVFIKRVSNVIIH--GRRID------IFASKNFHLQKN 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                394 AA; 43476 MW; A48DD586ECF148CA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Wedler H., Wambutt R., Bancroft I., Mewes H.W., Mayer K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16.7%; Score 68; DB 10; Length 394; 28.6%; Pred. No. 9.8; tive 7; Mismatches 27; Indels 7;
  6AF94B058C84C957 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     674 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
```

Query Match

16.5%; Score 67; DB 16;

Length 674;

```
밁
                               S
                                                                 片
                                                                                             Ś
                                                                                                                     Best Local Similarity 29.7%; Pred. No. 24; Matches 19; Conservative 15; Mismatches
                                                158 LMVVASFFQYG--QRFYLQKAANRIIQRLRIDLFN----HLSRLFV----RFFDNMPAGK 207
208 VVSR 211
                               61 IASR 64
                                                                                1 MKYTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                      Mismatches
                                                                                                                   20;
                                                                                                                   Indels
                                                                                                                   10;
                                                                                                                Gaps
```

Search completed: April 20, Job time: 71.5789 secs

2003, 13:12:54

. *·				
1				
	•			
			ø	
	*			

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein - protein search, using sw model
A Geneseq 101002:*

1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-142-524D-1
406
1 MKVTVAFNQFGPNRRVFIKR.....IASRRVDGIIAAYQNPASWK 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          April 20, 2003, 12:54:05; Search time 97.0526 Seconds (without alignments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   908470 segs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      109.838 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            908470
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

1 9 8 8 7 6 5 4 3 2 2 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Result No.
406 327.5 327.5 174.2 172.1 164 140.5 140.5	Score
100. 80.7 42.4 42.4 42.4 44.6 6.6	Query Match 1
108 108 134 214 1186 210 247 47 74 95	Query Match Length DB
118 118 122 122 123 121 121	
AAW27369 AAW27370 AAW27371 AAB69120 AAB69102 AAB69103 AAB69103 AAB60303 AAB23906 AAB23906 AAB23906	ID
Multi-epitope pept Multi-epitope pept Multi-epitope pept Multi-epitope pept Cedar pollen aller Cedar pollen aller Cedar pollen aller Sugi allergen prot Artificial sequenc Artificial sequenc Artificial sequenc	Description

45	44	4.	42	41	. 40	39	38	37	36	35	34	33	32	31	30	29	. 28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
99	99	100.5	102	103	114	120	121.5	125.5	125.5	125.5	125.5	127.5	127.5	127.5	133	133	133	133	135	135	135	135	135	135	135	135							140.5	
24.4			25.1		·w	۳	۳	.0				:-			.~	Ņ	٢	Ņ	·	ω	·w	·	·	Ψ	w	ω	4.	4.	4.	4.	4.	4	34.6	4.
460	19	61	61	42	47	47	47	79	79	79	47	79	79	79	81	81	81	71	93	93	93	93	88	18	81	81	99	99	99	97	96	96	95	95
16	22	21	21	22	19	19	19	22	21	21	19	22	21	21	22	21	21	21	22	22	21	21	22	22	21	19	22	21	21	22	22	22	22	21
AAR69791	AAB84115	AAB23883	AAB23894	AAB84105	AAW80356	AAW80357	AAW80351	AAB69096	AAB23890	AAB23885	AAW80352	AAB69095	AAB23884	388	8	87	AAB23874	AAB23878	AAB69117	AAB69097	AAB23896	AAB23891	AAB69114	AAB69118	389	035	206	390	390	910	911	6910	6909	AAB23901
icum a	no acid	ificial	Artificial secuenc	nomodulatory	Sugi allergen prot	allergen pro	allergen pro		ificial	ficial	allergen	מוומי	ificial s	cial s	r pollen alle	icial s	icial s	ficial sequen	pollen alle	r polle	icial s	ficial sequen	pollen alle	r polle	Artificial sequenc	alle	Cedar nollen aller	ficial	ficial	r pollen all	Log	pollen	pollen	Artificial sequenc

ALIGNMENTS

7369 AAW27 AAW27 AAW27 24-MA Multi T-cell T-cell Synth W0973 112-SE 10-MA 10-MA (MEIP Dairi WPI; Peptince	E E E E X	X X	X P i	X P	X P	X P	8 8	X P	8	¥	X H	ž Ę	X & X	RESULT AAW273 ID A
AAW27369 standard; peptide; 80 AA. AAW27369; 24-WAR-1998 (first entry) Multi-epitope peptide used as immunotherapeutic agent #1. Multi-epitope peptide; immunotherapeutic agent; allergic disease; T-cell epitope region; allergen; lymphocyte; immunoglobulin E. Synthetic. WO9732600-A1. WO9732600-A1. 12-SEP-1997. 10-WAR-1997; 97WO-JP00740. 10-MAR-1996; 96JP-0080702. (MEIF) MEIJI MILK PROD CO LTD. Dairiki K, Iwama A, Kino K, Kume A, Sone T; WPI; 1997-470495/43. Peptide immuno:therapeutic agent to treat allergic diseases - contains multi-epitope peptide containing T cell epitope regions from different allergens	Peptide immuno:therapeutic agent to treat allergic diseases -contains multi-epitope peptide containing T cell epitope regions from different allergens	WPI; 1997-470495/43.	Kino K, Kume A,	(MEIP) MEIJI MILK PROD CO LTD.	10-MAR-1996; 96JP-0080702.	10-MAR-1997; 97WO-JP00740.	12-SEP-1997.	W09732600-A1. 35 WAY & TI VOC.	Synthetic.	Multi-epitope peptide; immunotherapeutic agent; allergic disease; T-cell epitope region; allergen; lymphocyte; immunoglobulin E.	Multi-epitope peptide used as immunotherapeutic agent #1.	24-MAR-1998 (first entry)	AAW27369;	RESULT 1 AAW27369 ID AAW27369 standard, peptide, 80 AA.

Claim 6; Page

31;

58pp; Japanese.

8 x 5 5 5 5 5 5 5 5 5 5 5 5 8 x 8

The present sequence represents a multi-epitope peptide which is used as a new immunotherapeutic agent. It comprises T cell epitope regions from 2 or more different allergens (preferably linked via arginine or lysine dimers), where the T cell epitope regions: have a positivity index greater than 100 as measured in a patient group responding to the allergen; have at least 70% reactivity with lymphocytes from patients responding to the allergen; and are not reactive with immunoglobulin E responding to the allergen; and are not reactive with immunoglobulin E (IgE) antibodies from patients responsive to the allergen. The agent can be used to prevent and treat a wide variety of allergic diseases, e.g. by desensitisation. Side effects, e.g. those mediated by IgE, are reduced.

밁

-

8

1 MKVTVAENQEGENRRVEIKRVSNVIIHGRRIDIEASKNEHLQKNTIGTGRRISLKLTSGK 60

MKVTVAFNOFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLOKNTIGTGRRISLKLTSGK 60

Matches Query Match

80;

Conservative

0;

Mismatches

Indels Length

0

Gaps

0;

Local

Similarity

100.0%;

Score 406; DB 18; Pred. No. 2.6e-48;

DB 18;

Sequence

80 AA;

Ş

5

IASRRVDGIIAAYQNPASWK 80

```
RESULT 2
AAW27370
        문
The present sequence represents a multi-epitope peptide which is used as a new immunotherapeutic agent. It comprises T cell epitope regions from 2 or more different allergens (preferably linked via arginine or lysine dimers), where the T cell epitope regions: have a positivity index greater than 100 as measured in a patient group responding to the allergen; have at least 70% reactivity with lymphocytes from patients responding to the allergen; and are not reactive with immunoglobulin E (IgE) antibodies from patients responsive to the allergen. The agent can be used to prevent and treat a wide variety of allergic diseases, e.g. by desensitisation. Side effects, e.g. those mediated by IgE, are reduced.
                                                                                                                                                                                           contains multi-epitope peptide co
from different allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Multi-epitope peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Multi-epitope peptide used as immunotherapeutic agent #2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW27370 standard; peptide; 105
                                                                                                                                                                                                                                                                                                   Dairiki K,
                                                                                                                                                                                                                                                                                                                                                               10-MAR-1996;
                                                                                                                                                                                                                                                                                                                                                                                              10-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                             12-SEP-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO9732600-A1
                                                                                                                                                                           Claim 6; Page 31; 58pp; Japanese.
                                                                                                                                                                                                                                                                      WPI; 1997-470495/43
                                                                                                                                                                                                                                                                                                                                  (MEIP ) MEIJI MILK PROD CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IASRRVDGIIAAYONPASWK 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     epitope
                                                                                                                                                                                                                                                                                                 Iwama A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                 96JP-0080702.
                                                                                                                                                                                                                                                                                                                                                                                              97WO-JP00740.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       region;
                                                                                                                                                                                                                                                                                                   Kino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    immunotherapeutic agent; allergic disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       allergen; lymphocyte; immunoglobulin
                                                                                                                                                                                                                                                                                                   <u>,</u>
                                                                                                                                                                                                                       nt to treat allergic diseases -
containing T cell epitope regions
                                                                                                                                                                                                                                                                                                     Kume
                                                                                                                                                                                                                                                                                                   P
                                                                                                                                                                                                                                                                                                   Sone
```

Ś

```
SX
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                           Ś
                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best
                                                                                   Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                              The present sequence represents a multi-epitope peptide which is used a a new immunotherapeutic agent. It comprises T cell epitope regions from or more different allergens (preferably linked via arginine or lysine dimers), where the T cell epitope regions: have a positivity index greater than 100 as measured in a patient group responding to the allergen; have at least 70% reactivity with lymphocytes from patients responding to the allergen; and are not reactive with immunoglobulin E (19E) antibodies from patients responsive to the allergen. The agent case used to prevent and treat a wide variety of allergic diseases, e.g. desensitisation. Side effects, e.g. those mediated by 19E, are reduced.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAW27371;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Multi-epitope peptide used as immunotherapeutic agent #3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAW27371 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  10-MAR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12-SEP-1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9732600-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T-cell epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Multi-epitope peptide;
                                                                                                                                                                                                                                                                                            Claim 6; Page 32; 58pp; Japanese.
                                                                                                                                                                                                                                                                                                                     contains multi-epitope peptide from different allergens
                                                                                                                                                                                                                                                                                                                                              Peptide immuno:therapeutic
                                                                                                                                                                                                                                                                                                                                                                         WPI; 1997-470495/43.
                                                                                                                                                                                                                                                                                                                                                                                                Dairiki K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10-MAR-1997;
                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                          (MEIP ) MEIJI MILK PROD CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        54 -LKLTSGKIA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ب
                     μ
                                               _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRIS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MKVTVAFNOFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLOKNTIGTGRRWKNNRIWLO 60
                                        MKVTVAFNQFGENRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRR------
                     MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      105
                                                                                                                           134
                                                                                                                                                                                                                                                                                                                                                                                                Iwama A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first
                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A
                                                                                                                           A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                   96JP-0080702.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97WO-JP00740.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 region;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80.7%;
                                                                                   78.8%;
53.7%;
                                                                                                                                                                                                                                                                                                                                                                                                 Kino K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 allergen; lymphocyte; immunoglobulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            immunotherapeutic agent; allergic disease;
                                                                                                                                                                                                                                                                                                                                                agent to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----SRRVDGIIAAYQNPASWK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 327.5; DB 1
Pred. No. 2.7e-37;
                                                                         2;
                                                                                     Score 320;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                   Kume
                                                                                                                                                                                                                                                                                                                                  nt to treat allergic diseases containing T cell epitope re
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                 ۶
                                                                                     4e-36;
                                                                                                                                                                                                                                                                                                                                                                                                   Sone
                                                                                                 DB 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       æ
--
                                                                          6
                                                                                                                                                                                                                                                                                                                                      epitope regions
                                                                                                 Length 134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 105;
--TSGKIASRRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25;
                                                                           54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                          Gaps
  99
                         60
                                                   51
                                                                                                                                                            can
by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                                                                             N
                                                                           2
```

```
Ś
                                                                                                                       밁
                                                                                                                                                                        á
                                                                                                                                                                                                                                      밁
      밁
                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FOR STANDARD STANDARD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 4
AAB69120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Novel peptide and its use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 11; Page 58-59; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-PSDB; AAF59044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cedar pollen allergen T cell epitope derived protein SEQ ID NO:61.
      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2001-185061/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-MAR-2000; 2000JP-0071710.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-NOV-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cryptomeria japonica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Japanese cedar;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAB69120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAB69120 standard; Protein; 214 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU.
(SANY ) SANKYO CO LTD.
                                                             73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                    61
                                                                                                                                                                           51
                                                                                                                                                                                                                                      30
                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67
                                                                                                                                                                                                                                                                           1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                       YONPASWK 80
                                                                                                  IASCLNYGLVHVANNNYDPSGKYEGGNIYTKKEAFNVEQFAKLTGFTLMGRADPRGIIAA
                                                                                                                                                                                                                                      MKVTVAFNQFGP---
YONPASWK 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FAKLTGFTLMGRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DGITAAYQNPASWK 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DGIIAAYQNPASWK 80
                                                                                                                                                                                                                                                                                                                                                 49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              epitope;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      214 AA;
                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99JP-0068316.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cryptomeria japonica; cedar pollen allergen; antisugipollinosis.
                                                                                                                                                                                                                                                                                                                                                                          38.3%;
                                                                                                                                                                                                                                                                                                                                                                          Score 174.5; DB 22; Pred. No. 9.9e-16;
                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                      -DIFASKNFHLOKN------KLTSGK 60
                                                                                                                                                                                                                                                                                                                               .5;
.9.9e-16;
2;
                                                                                                                                                               -----RRVD--GIIAA 72
                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                  214;
                                                                                                                                                                                                                                                                                                                                  77; Gaps
                                                                                                                                                                                                                                                                                                                                     4
```

RESULT 5

AAB69102

```
RESULT 6
AAB69103
밁
                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  XPAXX
                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                Best
                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha6 alpha1 where alpha1 to alpha7 amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAP59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used
            Synthetic
                       Cryptomeria japonica
                                                               Japanese cedar; Cryptomeria japonica;
                                                                                        Cedar pollen allergen T cell epitope derived protein SEQ ID NO:12.
                                                                                                                            23-APR-2001
                                                                                                                                                         AAB69103;
                                                                                                                                                                                   AAB69103 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                in the exemplification of the present invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 14; Page 36-37; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB; AAF59011.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28-NOV-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cryptomeria japonica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Japanese cedar;
T cell epitope;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Novel peptide and its use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU.
(SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-MAR-2000; 2000JP-0071710.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cedar pollen allergen T cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAB69102 standard; Protein; 186 AA
                                                 cell epitope; antisugipollinosis
                                                                                                                                                                                                                                                      59 IASCLNYGLVHVANNNYDPSGKYEGGNIYTKKEAFNVERADPRGIIAAYONPASW 113
                                                                                                                                                                                                                                                                                          61 IAS-----
                                                                                                                                                                                                                                                                                                                       29 MKVTVAFNQFGP---
                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                          1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2001-185061/19.
                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                        186 AA;
                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99JP-0068316.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                antisugipollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cryptomeria japonica; cedar pollen allergen;
                                                                                                                                                                                                                                                                                                                                                                                          42.48;
                                                                                                                                                                                   210
                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                          Score 172; DB 22;
Pred. No. 1.8e-15;
                                                                                                                                                                                                                                                                                                               -----FASKNFHLQKNT-----KLTSGK 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           epitope derived protein SEQ ID NO:10.
                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                    -----RRVD--GIIAAYONPASW 79
                                                              cedar pollen allergen;
                                                                                                                                                                                                                                                                                                                                                                                                      Length 186;
                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                       66; Gaps
```

```
RESULT 7
AAW80353
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                              S
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present invention describes a peptide, its complex, derivative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 7; Page 39-40; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (HAYB )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-MAR-2000; 2000JP-0071710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28-NOV-2000.
                                                                                                                                                               T cell epitope; sugi allergen proteins Cryj1; Cryj2; treatment;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                               11-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       in the exemplification of the present invention.
                                                                                                                                  Synthetic
                                                                                                                                                      sugi-pollinosis; allergic reaction; pollen
                                                                                                                                                                                        Sugi allergen
                                                                                                                                                                                                                                     AAW80353;
                                                                                                                                                                                                                                                           AAW80353 standard; peptide; 47 AA.
                                                                 22-DEC-1997;
                                                                                                            JP10259198-A
         (HAYB) HAYASHIBARA SEIBUTSU KAGAKU. (SANY) SANKYO CO LTD.
                                                                                       29-SEP-1998
                                                                                                                                                                                                                                                                                                                 119 YQNPASW 125
                                                                                                                                                                                                                                                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                              59
                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                          29
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                      YONPASW
                                                                                                                                                                                                                                                                                                                                                                                                           MKVTVAFNQFGP
                                                                                                                                                                                                                                                                                                                                                                                                                               MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001-185061/19.
                                                                                                                                                                                                                                                                                                                                                            IASCLNYGLVHVANNNYDPSGKYEGGNIYTKKEAFNVEQFAKLTGFTLMGRADPRGIIAA 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          peptide and its use
                                                                                                                                                                                                                                                                                                                                                                                                                                                      47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HAYASHIBARA SEIBUTSU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 210 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                         79
                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99JP-0068316.
                                                                                                                                                                                       protein Cryj1 derived epitope for T cells.
                                           96JP-0343441
                                                                 97JP-0353448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                40.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KAGAKU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 164;
Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22;
                                                                                                                                                                                                                                                                                                                                                                                       ------RRVD--GIIAA 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                        78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        4
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A linked T cell epitope peptide - used for the treatment sugi-pollinosis % \left\{ 1\right\} =\left\{ 1\right\} =\left
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAW80339-58 represent epitopes for T cells, derived from the sugiallergen proteins Cryj1 (AAW80339-44, AAW80350-53 and AAW80356-58) ar Cryj2 (AAW80345-49 and AAW80354-55). The peptides are useful for the treatment of sugi-pollinosis, an allergic reaction of the body to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 10; Page 5; 21pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1998-577037/49
                                     The present invention describes a method for chemically synthesising a peptide by solid phase synthesis. The method comprises processing a carrier resin to which the C-terminal amino acid derivative of the target peptide has been preliminarily bonded is characterised by adding a protective group to inactivate a part of alpha-amino groups of an amino acid capable of undergoing a peptide extension reaction on the carrier resin. The method is useful for synthesising a peptide by solid phase synthesis. Tong chain peptides can be readily synthesised in with a high success ratio without using the segment condensation method or gene manipulations. The present sequence represents an amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Peptide synthesis; chemical synthesis; solid phase synthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Artificial sequence designed peptide #26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAB23905;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAB23905 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chemically synthesizing a peptide by solid phase synthesis by adding protective group to inactivate part of alpha amino group of an amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2000-602106/57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kawaguchi J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-MAR-2000; 2000WO-JP01584.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200055182-A1
peptide sequence given in an example from the present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (SANY ) SANKYO CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MKVTVAFNQFGENRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IASRRVDGIIAAYQNPASW 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MKVTVAFNQFG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6; Page 23; 38pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -GIIAAYQNPASW 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Serizawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99JP-0067917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             peptide; 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 144; DB 19;
Pred. No. 2.3e-12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FASKNFHLQKNT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        e
E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and
```

```
Ş
                                 밁
                                                         Ş
                                                                                                                                             RESULT 9
AAB23906
                                                                                      Query Match
Best Local S
Matches 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                           The present invention describes a method for chemically synthesising a peptide by solid phase synthesis. The method comprises processing a carrier resin to which the C-terminal amino acid derivative of the target peptide has been preliminarily bonded is characterised by adding a protective group to inactivate a part of alpha-amino groups of an amino acid capable of undergoing a peptide extension reaction on the carrier resin. The method is useful for synthesising a peptide by solid phase synthesis. Long chain peptides can be readily synthesised in with a high success ratio without using the segment condensation method or gene manipulations. The present sequence represents an amino acid peptide sequence given in an example from the present invention.
                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                  Chemically synthesizing a peptide by solid phase synthesis by adding protective group to inactivate part of alpha amino group of an amino
                                                                                                                                                                                                                                                                                                                                             Example 6; Page 24; 38pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2000-602106/57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kawaguchi J, Serizawa N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15-MAR-2000; 2000WO-JP01584.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200055182-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Peptide synthesis; chemical synthesis; solid phase synthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Artificial sequence designed peptide #27.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB23906 standard; peptide; 94 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
61 IASRRVDGIIAAYQN 75
                                26
                                      1 MKVTVAFNQFGFNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             37 TASCLNYGLVHVANN 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MKVTVAENQEGENRRVEIKRVSNVIIHGRRIDIEASKNEHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6 MKVTVAFNQFGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                            MKVTVAFNQFGP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IASRRVDGIIAAYQN 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                             94 AA;
                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       74 AA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99JP-0067917.
                                                                                              34.6%;
48.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       34.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                Score 140.5; DB 2
Pred. No. 1.7e-11;
2; Mismatches 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 140.5; DB 21; Pred. No. 1.3e-11; 2; Mismatches 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -DIFASKNEHLOKN------KLTSGK 36
                                                                                                            DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 21; Length 74;
                                                                                8
                                                                                Indels
                                                                                                          Length 94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                             29;
                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2
```

```
RESULT 11
AAB23901
                                                                                                     Ś
                                                                           밁
                                                                                                                                  밁
                                                                                                                                                             Ś
                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                          Matches
                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                 The present invention describes a method for chemically synthesising a peptide by solid phase synthesis. The method comprises processing a carrier resin to which the C-terminal amino acid derivative of the target peptide has been preliminarily bonded is characterised by adding a protective group to inactivate a part of alpha-amino groups of an amino acid capable of undergoing a peptide extension reaction on the carrier resin. The method is useful for synthesising a peptide by solid phase synthesis. Long chain peptides can be readily synthesised in with a high success ratio without using the segment condensation method or gene manipulations. The present sequence represents an amino acid peptide sequence given in an example from the present invention.
AAB23901 standard; peptide; 95
                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 5; Page 34-35; 38pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chemically synthesizing a peptide by solid phase synthesis by adding protective group to inactivate part of alpha amino group of an amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acid group
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2000-602106/57.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kawaguchi J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15-MAR-2000; 2000WO-JP01584.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Peptide synthesis; chemical synthesis; solid phase synthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200055182-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Artificial sequence designed peptide SEQ ID NO:5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAB23897;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB23897 standard; peptide; 95 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (SANY ) SANKYO CO LTD.
                                                                      58 IASCLNYGLVHVANN 72
                                                                                                 61 IASRRVDGIIAAYON 75
                                                                                                                              27 MKVTVAFNOFGP-----
                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            57
                                                                                                                                          MKVTVAFNOFGENRRVEIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ||| | |:: |
|ASCLNYGLVHVANN 71
                                                                                                                                                                                          36;
                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                   95
                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Serizawa N;
                                                                                                                                                                                                                                                AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99JP-0067917.
                                                                                                                                                                                                     34.6%;
                                                                                                                                                                                                  Score 140.5; DB 2
Pred. No. 1.7e-11;
                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                              DB 21;
                                                                                                                                                                                     8;
                                                                                                                                                                                    Indels
                                                                                                                                                                                                              Length
                                                                                                                                                                                 29; Gaps
                                                                                                                           KLTSGK 57
```

17-JAN-2001

(first_entry)

```
ARBSULT 12
AAB69098
ID AAB69
XX AAB69
XX AAB69
XX AAB69
XX AAB69
XX Japan
XX Japan
XX Japan
XX T Cel
XX Crypt
OS Synth
XX X
PN JP200
XX
PD 28-NC
                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The present invention describes a method for chemically synthesising a peptide by solid phase synthesis. The method comprises processing a carrier resin to which the C-terminal amino acid derivative of the target peptide has been preliminarily bonded is characterised by adding a protective group to inactivate a part of alpha-amino groups of an amino acid capable of undergoing a peptide extension reaction on the carrier resin. The method is useful for synthesising a peptide by solid phase synthesis. Long chain peptides can be readily synthesised in with a high success ratio without using the segment condensation method or gene manipulations. The present sequence represents an amino acid peptide sequence given in an example from the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chemically synthesizing a peptide by solid phase synthesis by adding protective group to inactivate part of alpha amino group of an amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kawaguchi J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Peptide synthesis; chemical synthesis; solid phase synthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Artificial sequence designed peptide #23.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acid group
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2000-602106/57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-MAR-2000; 2000WO-JP01584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200055182-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example 5; Page 21-22; 38pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (SANY ) SANKYO CO LTD
                                                                                                                              Japanese cedar; Cryptomeria japonica; cedar pollen allergen;
                                                                                                                                                              Cedar pollen allergen T cell epitope derived peptide SEQ ID NO:5
                                                                                                                                                                                             23-APR-2001
                                                                         Synthetic.
                                                                                       Cryptomeria japonica
                                                                                                                                                                                                                         AAB69098;
                                                                                                                                                                                                                                                     AAB69098 standard; Peptide; 95
               28-NOV-2000.
                                             JP2000327699-A
                                                                                                                  cell epitope; antisugipollinosis.
                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                           13
                                                                                                                                                                                                                                                                                                                                                                                       27 MKVTVAFNQFGP---
                                                                                                                                                                                                                                                                                                                                                                                                                    1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                                                                                          IASRRVDGIIAAYQN
                                                                                                                                                                                                                                                                                                                             IASCLNYGLVHVANN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Serizawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99JP-0067917
                                                                                                                                                                                                                                                                                                                                                                                                                                                              34.6%;
                                                                                                                                                                                                                                                                                                                                 72
                                                                                                                                                                                                                                                                                                                                                             75
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 140.5; DB 2
Pred. No. 1.7e-11;
2; Mismatches 8
                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                          ----DIFASKNFHLQKN---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    80
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                            ----KLTSGK 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
```

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
AAB69104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T call epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinossis agent. AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 5; Page 33-34; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Novel peptide and its use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2001-185061/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-MAR-2000; 2000JP-0071710.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU.
(SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                      AAB69104 standard; Protein; 96 AA.
                                                             Novel peptide and its use
                                                                                                                                                                                 15-MAR-2000; 2000JP-0071710
                                                                                                                                                                                                                                    JP2000327699-A.
                                                                                                                                                                                                                                                                         Cryptomeria japonica.
                                                                                                                                                                                                                                                                                                    T cell epitope; antisugipollinosis.
                                                                                                                                                                                                                                                                                                                Japanese cedar;
                                                                                                                                                                                                                                                                                                                                       Cedar pollen allergen T cell epitope derived protein SEQ ID NO:13.
                                                                                                                                                                                                                                                                                                                                                                    23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                             AAB69104;
                                     Claim 8; Page 40; 75pp; Japanese.
                                                                                         WPI; 2001-185061/19.
                                                                                                                                                        15-MAR-1999;
                                                                                                                                                                                                             28-NOV-2000.
                                                                                                                  (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU.
(SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        58 IASCLNYGLVHVANN 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MKVTVAFNQFGFNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MKVTVAFNQFGP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IASRRVDGIIAAYON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               95 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99JP-0068316.
                                                                                                                                                          99JP-0068316.
                                                                                                                                                                                                                                                                                                                Cryptomeria japonica; cedar pollen allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ------DIFASKNFHLQKN------KLTSGK 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 140.5; DB 2
Pred. No. 1.7e-11;
2; Mismatches 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 22; Length 95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               œ
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
```

The present invention describes a peptide, its complex, dits polymerizate, where the peptide (I) has a formula of:

derivative

or

```
RESULT 14
AAB69119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  გგგგგგგ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
         Best Loc
Matches
                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                     The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAR59011 to AAR59062 and AAR69094 to AAR69121 represent sequences used
                                                             Sequence
                                                                                                                                                                                                                                             Novel peptide and its use
                                                                                in the exemplification of the present
                                                                                                                                                                                                               Example 11; Page 54-55; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                    15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                             15-MAR-2000; 2000JP-0071710.
                                                                                                                                                                                                                                                                                                                                                                                                          28-NOV-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                   JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cryptomeria japonica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cedar pollen allergen T cell epitope derived protein SEQ ID NO:53.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB69119 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7
where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent.

AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used
                                                                                                                                                                                                                                                                                                          (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU.
(SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Japanese cedar;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 in the exemplification of the present invention.
                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      46 IASCLNYGLVHVANN 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61 IASRRVDGIIAAYON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15 MKVTVAFNOFGP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MKVTVAFNQFGFNRRVFIKRVSNVIIHGRRIDIFASKNTHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                  2001-185061/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  epitope;
                                                                                                                                                                                                                                                                        AAF59037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                           96 AA;
        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                    99JP-0068316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cryptomeria japonica; cedar pollen allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               antisugipollinosis
                34.6%;
48.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       34.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75
  Score 140.5; | Pred. No. 1.8e 2; Mismatches
      'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 140.5; DB 2
Pred: No. 1.8e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -DIFASKNFHLQKN------KLTSGK 45
                                                                                invention.
                .8e-11;
                           DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
 Indels
                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29;
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ŋ
```

```
문
                        Ś
                                                     밁
                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   XX SO SX XX X DE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 15
                                                                                                      Matches
                                                                                                                Query Match
Best Local
                                                                                                                                                                              The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used
                                                                                                                                                      Sequence
                                                                                                                                                                        in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                        Claim 9; Page 41-42; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                   Novel peptide and its use
                                                                                                                                                                                                                                                                                                                                                              N-PSDB; AAF59013
                                                                                                                                                                                                                                                                                                                                                                           WPI; 2001-185061/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                         15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-MAR-2000; 2000JP-0071710.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28-NOV-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cryptomeria japonica.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cedar pollen allergen T cell epitope derived protein SEQ ID NO:15
                                                                                                                                                                                                                                                                                                                                                                                                  (HAYB ) HAYASHIBARA SI
(SANY ) SANKYO CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Japanese cedar;
T cell epitope;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23-APR-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAB69105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB69105 standard; Protein; 97
  47
                        61 IASRRVDGIIAAYON 75
                                               16 MKVTVAFNQFGP---
                                                                  1 MKVTVAFNQFGÞNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 IASRRVDGIIAAYON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15 MKVTVAFNOFGP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MKVTVAFNQFGFNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
IASCLNYGLVHVANN
                                                                                                    36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IASCLNYGLVHVANN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   epitope;
                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                              HAYASHIBARA SEIBUTSU KAGAKU.
                                                                                                                                                    97 AA;
                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                         99JP-0068316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                antisugipollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cryptomeria japonica; cedar pollen allergen
                                                                                                            34.6%;
61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                 2
                                                                                               Score 140.5; DB 2
Pred. No. 1.8e-11;
2; Mismatches 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---DÍFÁSKNFHLÓKN-----
                                              -DIFASKNFHLOKN
                                                                                                                      DB 22;
                                                                                               8
                                                                                               Indels
                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----KLTSGK
                                                                                                                       97;
                                                                                               29;
                                                                                            Gaps
                                           46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45
                                                                                            2
```

Search completed: April 20, 2003, 13:06:02 Job time: 98.0526 secs

					-	
. *						
•						
·						
	•					
	•					
			·			
					·	
				•		

```
Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 0% Maximum Match 100%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   115.5
115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score
                                                                                                                                                                                                                                                   66.5
5.5
                                                                                                                                                                                                                                                                                                                                                81
77
75.5
73.5
73.5
68.5
67.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            93.5
93.5
91.5
84.5
                                                                                                                                                                                                                                                                                                                            67
                                                                                                                                                                                                     99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  April 20, 2003, 12:57:30 ; Search time 42:5526 Seconds (without alignments) 237:215 Million cell updates/sec
                                                                                                  200.7
116.8
116.8
116.8
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
115.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   283224 seqs, 96134422 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MKVTVAFNQFGPNRRVFIKR......FDGRRVDGIIAAYQNPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-142-524D-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PIR_73:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version 5.1.4 p5 4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pir2:*
pir3:*
pir4:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pirl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                188
196
493
602
317
197
284
                                                                                                                                                                                                                                              689
110
686
777
                                                                                                                                                                                                                                                                                                                                                                                                                         AD3471
                                                                                                                                                                                                                                                                                                                                                                                             A45049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S48730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARIES
hypothetical prote
NADH2 dehvdrogense
                                                              hypothetical 22K p
major antigenic pr
                                                                                                            oxidoreductases ho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              major allergen Cry
major allergen Cry
Jun a 2 protein -
                                            sensory transducti
                                                                                                                                    hypothetical prote
exsE protein (AJ22
                                                                                                                                                                                                            penicillin G acyla
hypothetical prote
                                                                                                                                                                                                                                                           NADH2 dehydrogenas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description
                                                                                                                                                                                        probable membrane
                                                                                                                                                                                                                                                                                                                                      hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 polygalacturonase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cry j II protein
                                                                                                                                                                                                                                                                                          hypothetical nucle
                                                                                                                                                                                                                                                                                                                                                                phosphopentomutase
                                                                                                                                                                                                                                                                                                                                                                                     4-alpha-glucanotra
                                                                                                                                                                                                                                                                                                                                                                                                                                      hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                             synaptobrevin homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       probable synaptobr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        second major aller
                                                                                                                                                                                                                                                                                                                                                                                                                 mdenylyl-sulfate
                                                                                                                                                                                                                                                                                                               ong-chain ac
```

Result No.

45	44	. 44 . U.	4.2	41	40	. 39) (3 (יי	34	33		ပ ၁	31	30
62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5	0 0 0	3 6	3 1	מא	63	64	10	3	63.5	63.5
11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2			11.3	11.3	1 L L . G		11.4	11.4
840	700	700	698	604	493	449	429	394	34	, ,	343	880	540	357) (572	130
N	N	N	N	N	N	N	N	N	N	۱ د	J	N	N	K	,	N	N
A87639	T12589	T13661	T12713	T12651	T48934	S27098	AD1921	T49115	6T086F	980/01	000701	S44833	B57785	E90116	0000	S68119	A81012
Q,	NADH2 dehydrogenas	NADH2 dehydrogenas	NADH2 dehydrogenas	NADH2 dehydrogenas	acyl CoA reductase	pectate lyase (EC	hypothetical prote	pectate lyase like	conserved hypothet	nypothetical prote	r CHILL C PLOCETI	ガカルばしつ の ひてつすっこけ	zinc finger protei	mRNA capping enzym	Taccase (EC 1.10.3		30S ribosomal prot

ALIGNMENTS

S48730

Cry j II protein - Japanese cedar (Japanese cedar) (Species: Cryptomeria japonica (Japanese cedar) C;Species: Cryptomeria japonica (Japanese cedar) C;Date: 07-May-1995 #sequence_revision 21-Jul-1995 #text_change 28-May-1999 C;Accession: S48730 #sequence_revision 21-Jul-1995 #text_change 28-May-1999 R;Namba, M.; Kurose, M.; Torigoe, K.; Hino, K.; Taniguchi, Y.; Fukuda, S.; Usui, M.; Kuri PEBS Lett. 353, 124-128, 1994 PEBS L

A; Accession: S48730

A;Molecule type: protein
A;Residues: 52-61 <KO25
R;Sakaguchi, M.; Inouye, S.; Taniai, M.; Ando, S.; Usui, M.; Matuhasi, T.
Allergy 45, 309-312, 1990
A;Title: Identification of the second major allergen of Japanese cedar pollen.
A;Reference number: A60147, MUID:90342988; PMID:2382797
A;Recession: A60147 second major allergen Cry j II precursor - Japanese cedar (;Species: Cryptomeria japonica (Japanese cedar) C;Date: 16-Mar-1995 #sequence_revision 26-May-1995 #text_change 21-Jul-2000 C;Accession: JC2498; PC2346; A60147 R;Komiyama, N.; Sone, T.; Shimizu, K.; Morikubo, K.; Kino, K. Biophys. Res. Commun. 201, 1021-1028, 1994 A;Title: CDNA clonning and expression of Cry j II, the second major allergen of Japanese A;Reference number: JC2498; MUID:94271186; PMID:8002972 **,** B A; Molecule type: protein A;Cross-references: DDBJ:D29772; NID:g506857; PIDN:BAA06172.1; PID:g506858 A;Accession: PC2346 A; Molecule type: mRNA A; Residues: 1-514 < KOM> 밁 Ś Ś A;Cross-references: GB:D37765; NID:g577695; PIDN:BAA07021.1; PID:d1007598; PID:g577696 A;Status: preliminary A;Molecule type: mRNA A;Residues: 1-514 <NAM> Matches Query Match 144 KLTGFTLMGK 153 63 12 PNRRVFIKRVSNVIIHGR-----RID--IFASKNFHLQKNTIGTGRRWKNNRIWLQFA 62 Local KLTGFTLMGR 72 PGNKKFV--VNNLFFNGPCQPHFTFKVDGIIAAYQN-----PASWKNNRIWLQFA 143 Similarity Conservative 20.7%; Score 115.5; DB 2; Pred. No. 2.1e-05; Mismatches Length 514; Indels 21; Gaps 4

```
polygalacturonase Cha o 2 - Japanese cypress)
C;Species: Chamaecypris obtusa (Japanese cypress)
C;Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 11-May-2000
C;Accession: JC7100; PC7026
R;Mori, T.; Yokoyama, M.; Komiyama, N.; Okano, M.; Kino, K.
Biochem. Biophys. Res. Commun. 263, 166-171, 1999
A;Title: Purification, identification, and cDNA cloning of Cha o 2, the second major all A;Reference number: JC7100; MUID:99417540; TMID:10486272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Residues: 55-64 <BAK>
C;Keywords: glycoprotein; pollen
F;1-54/Domain: signal sequence #status predicted <SIG>
F;55-460/Product: second major allergen Cry j #status predicted <PAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F;429,460,472/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                major allergen Cry j I precursor (clone pCCI-15) - Japanese cedar
C;Species: Cryptomeria japonica (Japanese cedar)
C;Date: 14-Jul-1994 #sequence_revision 14-Jul-1994 #text_change 21-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: mRNA
A; Residues: 1-514 < MOR>
                                                                                                                                                                                            A;Note: the authors described carbohydrate binding site for residue 279
(C;Superfamily: pectate lyase LAT59
(C;Superfamily: pectate lyase LAT59
(C;Keywords: glycoprotein; pollen
(F;1-21/Domain: signal sequence #status predicted <SIG>
(F;22-374/Product: major allergen Cry j I (clone pCCI-15) #status predicted <AMT>
                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Sone, T.; Komiyama, N.; Shimizu, K.; Kusakabe, T.; Morikubo, K.; Kino, K. Biochem. Biophys. Res. Commun. 199, 619-625, 1994
A;Title: Cloning and sequencing of cDNA coding for Cry j I, a major allergen of Japanese A;Reference number: JC2123; MUID:94183234; PMID:8135802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: protei
A; Residues: 51-62 < MO2 >
                         ş
                                                                                                                                                                                                                                                                                                                     A;Cross-references: GB:D26545; NID:g493633; PIDN:BAA05543.1; PID:g493634
A;Experimental source: pollen
                                                                                                                                                                                                                                                                                                                                                                    A;Accession: JC2124
A;Molecule type: mRNA
A;Residues: 1-374 <SON>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Accession: JC2124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Accession: PC7026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: JC7100
                                                                                                                                                                          F;158,191,293,354/Binding site: carbohydrate (Asn) (covalent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52 WKNNRIWLQFAKLTGFTLMGR 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13 NRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGT-----GRRWKNNRIWLQFAKLTG 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98 NKKFF---VNNLVFRG-----PCQPHLSFKVDGTIVAQPDPARWKNSKIWLQFAQLTD 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FTLMG 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25
                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17.6%;
                                                                                               16.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                             6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 115; DB 2; Length 514; Pred. No. 2.5e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 98; DB 2;
Pred. No. 0.0023;
                                                                                                                         Score 93.5;
                                                                                                    Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                               Mismatches
                                                                                                    ŏ.
                                                                                                    0.0054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2; Length 514;
                                                                                                                           DB 2; Length 374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16;
                                                                               Indels
                                                                                                                                                                            #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16;
                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ω,
                                                                             1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
       F72335
```

```
A;Molecule type: protein
A;Residues: 22-53;58-61;219-232;236-258;299-307;346-372 <S02>
A;Residues: 22-53;58-61;219-232;236-258;299-307;346-372 <S02>
A;Note: the authors described carbohydrate binding site for residue 279
C;Superfamily: pectate lyase LAT59
C;Keywords: glycoprotein; pollen
F;1-21/Domain: signal sequence #status predicted <SIG>
F;22-374/Product: major allergen Cry j I (clone pCCI-2-2) #status predicted <MAT>
F;158,191,293,354/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            major allergen Cry j I precursor (clone pCCI-2-2) - Japanese cedar C;Species: Cryptomeria japonica (Japanese cedar) C;Date: 14-Jul-1994 #sequence_revision 14-Jul-1994 #text_change 21-Jul-2000 C;Accession: JC2123; PC2065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R;Sone, T.; Koniyama, N.; Shimizu, K.; Kusakabe, T.; Morikubo, K.; Kino, K. Biochem. Biophys. Res. Commun. 199, 619-625, 1994
A;Title: Cloning and sequencing of cDNA coding for Cry j I, a major allergen of Japanese A;Reference number: JC2123; MUID:94183234; PMID:8135802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Biochem. Biophys. Res. Commun. 275, 195-202, 2000
A;Title: Purification, identification, and cDNA c)
A;Reference number: JC7366
A;Accession: JC7366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Accession: PC2065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: GB:D26544; NID:g493631; PIDN:BAA05542.1; PID:g493632
A;Experimental source: pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: mRNA
A; Residues: 1-374 < SON>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: JC2123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Jun a 2 protein - mountain cedar
C;Species: Juniperus ashei (mountain cedar)
C;Date: 17-Nov-2000 #sequence revision 17-Nov-2000 #text_change 17-Nov-2000
C;Accession: JC7366; PC7093
                                                                                                                                                                                                                                                                                                                           o the polygalacturonase ramity. C; Keywords: glycoprotein; pollen
                                                                                                                                                                                                                                                                                                                                                     A;Molecule type: protein
A;Residues: 55-63 <702>
C;Comment: This protein, a second major allergen of mountain cedar pollen, which is invol
o the polygalacturonase family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: GB:AJ404653
A;Accession: PC7093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
A; Residues: 1-507 < YOK>
                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R; Yokoyama, M.; Miyahara, M.; Shimizu, K.; Kino, K.; Tsunoo, H
밁
                                                    Ś
                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28
151 LMGTGV----IDGQGNRWWSDQCKTINGRTV 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     53 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGR 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                      69 LMGRRLKMPMYIAGY-----KTFDGRRV 91
                                                                                                             97 PANKKFV--VNNLVFYGPCQPHFSFK----VDGTIAAYPDPAKWKNSKIWMHFARLTDFN 150
                                                                                                                                                               12 PNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGT---GRRWKNNRIWLQFAKLTGFT 68
                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RDRPLWIIFS-----GNMNIKLKMPMYIAGYKTFDGR 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RDRPLWIIFS-----GNMNIKLKMPMYIAGYKTFDGR 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19;
                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     identification, and cDNA cloning of Jun a 2, the second major all
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16.8%;
                                                                                                                                                                                                                                                  16.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 93.5;
Pred. No. 0.
                                                                                                                                                                                                                                                  Score 91.5; DB Pred. No. 0.013;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.0054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                            DB 2;
                                                                                                                                                                                                                           26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 374;
                                                                                                                                                                                                                                                                               Length 507;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                              23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>ა</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1;
                                                                                                                                                                                                                                 5
```

```
C;Accession: T04630
R;Bevan, M.; Rose, M.; Hempel, S.; Entian, K.D.; Hoheisel, J.; Mewes, H.W.; Mayer,
submitted to the Protein Sequence Database, March 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    M; Koo, H.; Molfat, K.S.; Cronin, L.A.; Shea, T.P.; Benito, M.I.; Town, C.D.; Fujii, C.Y. euss, D.; Nierman, W.C.; White, O.; Eisen, J.A.; Salzberg, S.E.; Umayam, L.; Tallon, Jature 402, 761-768, 199

A;Reference and analysis of chromosome 2 of the plant Arabidopsis thaliana.

A;Reference number: A84420; MUID:20083487; PMID:10617197
A; Molecule type: DNA
                   A; Reference number: Z15263
A; Accession: T04630
                                                                                                              Synaptobrevin homolog F10N7.40 - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 23-Apr-1999 #sequence_revision 23-Apr-1999 #text_change 21-May-1999
C;Accession: T04630
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       probable synaptobrevin [imported] - Arabidopsis thaliana C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 02-Feb-2001 #sequence_revision 02-Feb-2001 #text_change 02-Feb-2001 C;Accession: C84647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Gene: Atzgz5340
A; Map position: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-219 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:AE002093; NID:g4567243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Gene: TM0760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: GB:AE001746; GB:AE000512; NID:g4981285; PIDN:AAD35842.1; PID:g498128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R;Nelson, K.E.; Clayton, R.A.; Gill, S.R.; Gwinn, M.L.; Dodson, R.J.; Haft, D.H.; Hi
Garrett, M.M.; Stewart, A.M.; Cotton, M.D.; Pratt, M.S.; Phillips, C.A.; Richardson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hypothetical protein TM0760 - Thermotoga maritima (strain MSB8) C;Species: Thermotoga maritima C;Date: 11-Jun-1999 #sequence_revision 11-Jun-1999 #text_change C;Accession: F72335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Experimental source: strain MSB8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Residues: 1-398 < ARN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nature 399, 323-329, 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;Title: Evidence for lateral gene transfer between Archaea and Bacteria from genome se
;Reference number: A72200; MUID:99287316; PMID:10360571
;Accession: F72335
                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Species: Thermotoga maritima
|Species: I1-Jun-1999 #sequence_revision 11-Jun-1999 #text_change 21-Jul-2000
|Accession: F72335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Status: preliminary
                                                                                                                                                                                                                                                                                             138 RDVMIENIDNILDRGERLELLVDKTANMQGNTFRFRKQTRRFNNTVWWRNCKLT
                                                                                                                                                                                                                                                                                                                                       14 RRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWK--NNRIWLQFAKLT 65
                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     87 DYYRNGRKKIIQKRYDVIIASSPHPFSW 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ű
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28 GRRIDIFASKNFHLQKNTIGTGRRWKNNRIW------LQFAKLTGFTLMGRRLKM 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77 PMYIAGYKTFDGRRVDGIIAAYQNPASW 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GHRVDIYIGDFSHL----TGKRWSETFGWSFSKDGVDFIVVETREYTGNSLSRLLSSI 86
                                                                                                                                                                                                                                                                                                                                                                                                  16; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                 14.5%; Score 81; DB 2; 29.6%; Pred. No. 0.084;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15.1%; Score 84.5; DB 2; Length 398; 28.4%; Pred. No. 0.064;
                                                                                                                                                                                                                                                                                                                                                                                              14; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2; Length 219;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIDN:AAD23657.1; GSPDB:GN00139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      35;
                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17;
                                                                                                                                                                                                                                                                                                                                                                                         2;
                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C.Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hickey
                                                                                 K.F.X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                RESULT 11
AD3471
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Kaneko,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S76496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
```

```
R;DelVecchio, V.G.; Kapatral, V.; Redkar, R.J.; Patra, G.; Mujer, C.; Los, T.; Ivanova, h.; Mazur, M.; Goltsman, E.; Selkov, E.; Elzer, P.H.; Hagius, S.; O'Callaghan, D.; Letessc Proc. Natl. Acad. Sci. U.S.A. 99, 443-448, 2002
A;Title: The genome sequence of the facultative intracellular pathogen Brucella melitens; A;Reference number: AD3252; PMID:11756688
A; Experimental source:
           A;Cross-references: GB:AE008917; PIDN:AAL52935.1; PID:g17983784; GSPDB:GN00190
                                                                                                                                                                                                                                                                                                              adenylyl-sulfate kinase (EC 2.7.1.25) [imported] - Brucella melitensis (strain 16M) (;Species: Brucella melitensis (;Date: 01-Feb-2002 #sequence_revision 01-Feb-2002 #text_change 19-Apr-2002
                                                    A; Residues: 1-644 < KUR>
                                                                         A; Molecule type: DNA
                                                                                                         A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Note: the nucleotide sequence C;Superfamily: starch synthase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Molecule type: DNA
A;Residues: 1-477 <KAN>
A;Residues: 1-477 <KAN>
A;Cross-references: EMBL:D90915; GB:AB001339; NID:g1653604; PIDN:BAA18625.1;
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, June
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Reference number: S74322; MUID:97061201; PMID:8905231 A;Accession: S76496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C;Species: Synechocystis sp.
A;Variety: PCC 6803
C;Date: 25-Apr-1997 #sequence_revision 25-Apr-1997 #text_change 20-Jun-2000
C;Accession: S76496
                                                                                                                                                                                                                                                                                                        C; Accession: AD3471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               {	t A}_iTitle: Sequence analysis of the genome of the unicellular cyanobacterium Synechocystis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Introns: 73/1; 136/3; 191/2
A;Note: F10N7.40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross-references: EMBL:ALO21636
A;Experimental source: cultivar Columbia; BAC clone F10N7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 hypothetical protein - Synechocystis sp. (strain PCC 6803)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Map position: 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Residues: 1-219 <BEV>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kaneko, T.; Sato, S.; Kotani, H.; Tanaka, A.; Asamizu, E.; Nakar
K.; Okumura, S.; Shimpo, S.; Takeuchi, C.; Wada, T.; Watanabe,
Res. 3, 109-136, 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    195 ILLLLVIIYIA 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        138 RGVMIENIDKVLDRGERLELLVDKTANMOGNTFRFRKOARRFRSN-VWWRNCKLT--VLL 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31 HOLGHDVRVFMPYYGFI---GDKIDV---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 75 L---PDTKIPLYLFGHPAFDSRRIYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   68 TLMGRRLKMPMYIAGYKTFDGRRVDG 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         71 GRRLKMPMYIA 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14 RRVFIKRVSNVIIHGRRIDIFASKNFHLOKNTI---GTGRRWKNNRIWLQFAKLTGFTLM 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 NQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGF 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    h 13.8%; Score 77; Similarity 31.0%; Pred. No. 22; Conservative 16; Mismatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13.5%; Score 75.5; DB 26.7%; Pred. No. 0.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 219;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 477;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    E.; Nakamura, Y.; Mi)
Watanabe, A.; Yamada,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Y.; Miyajima, N.;
Yamada, M.; Yasuda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PID:g1653713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
•
```

```
A;Gene: BMEI1754
A;Map position: I
C;Superfamily: nodulation protein nodQ; adenylylsulfate kinase homology; translation elc
C;Keywords: phosphotransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4-alpha-glucanotransferase (EC 2.4.1.25) - potato
N;Alternate names: amylomaltase; D-enzyme; disproportionating enzyme
C;Species: Solanum tuberosum (potato)
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C;Accession: A45049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:X68664; GB:S52648; NID:g296691; PIDN:CAA48630.1; PID:g296692
A;Experimental source: cv. May Queen, tubers
A;Note: sequence extracted from QUEI backbone
A;Note: sequence extracted from QUEI (NCBIN:122077, NCBIP:122078)
C;Superfamily: 4-alpha-glucanotransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R;Takaha, T.; Yanase, M.; Okada, S.; Smith, S.M.
J. Biol. Chem. 268, 1391-1396, 1993
A;Title: Disproportionating enzyme (4-alpha-glucanotransferase;
A;Reference number: A45049; MUID:93123262; PMID:7678257
A;Accession: A45049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                               J Daly, M.J.; Bennett, G.N.; Koonin, E.V.; Smith, D.R.
J. Bacteriol. 183, 4823-4838, 2001
A;Title: Genome Sequence and Comparative Analysis of the Solvent-Producing Bacterium A;Reference number: A96900; MUID:21359325; PMID:21359325
A;Accession: E97154
A;Accession: E97154
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-390 <KUR>
A;Cooss-references: GB:AE001437; PIDN:AAK80024.1; PID:915025052; GSPDB:GN00168
A;Experimental source: Clostridium acetobutylicum ATCC824
                                                                                                                                                                                                                                                                                                                                                                                                                C;Date: 14-Sep-2001 #sequence_revision 14-Sep-2001 #text_change 30-Sep-2001 C;Accession: B97154 R;Nolling, J.; Breton, G.; Omelchenko, M.V.; Markarova, K.S.; Zeng, Q.; Gibson, R; Dally, M.J.; Bennett, G.N.; Koonin, E.V.; Smith, D.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ŕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: mRNA
A; Residues: 1-576 < TAK>
                                                                                              A; Gene: CAC2065
C; Superfamily: phosphopentomutase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 phosphopentomutase [imported] - Clostridium acetobutylicum
C;Species: Clostridium acetobutylicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; Keywords:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Status: preliminary
                                                                                                                                                           A; Experimental source: Clostridium C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    462 PAVLWFTGLSASGKSTIANRLEQRLHALGKHTYLLDGDNV 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        402 IÁFDPYGENRATGAFVLIDRLTNATVGAGMIDAALRQATNVHLQAFDLNKQARAAQKFQK 461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   54 NNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTF--DGRRV 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31 IDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             госат
                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5 VAFNQFGPNRR----VFIKRVSNVIIHGRRID--IFASKNFHLQ-----KNTIGTGRRWK 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IDIFIAQQFLFQ-----RQWKKVR---DYARSKGISIMG---DMPIYV-GYHSAD 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        chloroplast; glycosyltransferase; hexosyltransferase
                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12.7%; Score 71; DB 1; Length 576; 35.1%; Pred. No. 3.6;
                      12.3%; Score 68.5; Di
29.0%; Pred. No. 4.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10;
12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 73.5; DI
Pred. No. 2.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
Mismatches
                                                    DΒ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 2; Length 644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44;
45;
                                                  2
                                               Length 390;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EC 2.4.1.25)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14;
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of potato.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                         70
.
                                                                                                                                                                                                                                                                                                                                                                              ဂ
```

```
RESULT 15
JW0107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hypothetical protein YHR154w - yeast (Saccharomyces cerevisiae)
C;Species: Saccharomyces cerevisiae
C;Date: 28-Oct-1994 #sequence_revision 28-Oct-1994 #text_change 19-Apr-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Berger, J.; Truppe, C.; Neumann, H.; Forss-Petter, S. Biochem. Biophys. Res. Commun. 247, 255-260, 1998
A;Title: A novel relative of the very-long-chain acyl-CoA synthetase A;Reference number: JW0107; MUID:98308102; PMID:9642112
A;Accession: JW0107.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Accession: S46755
A;Molecule type: DNA
A;Residues: 1-1070 <MAC>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   submitted to the EMBL Data Library, June 1994 A;Description: The sequence of S. cerevisiae cosmid 9666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R; Macri,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Accession: S46755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S46755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Map position: 8R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Description:
                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:AJ223959
A;Experimental source: liver
C;Comment: This protein likely functions as a plasma membrane transporter of long chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       very-long-chain acyl-CoA synthetase related protein - mouse N_{\ell}Alternate names: VLACSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: SGD:S0001197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Gene: SGD:ESC4; MIPS:YHR154w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Cross-references: EMBL: U10397; NID: g500647;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Reference number: S46752
용
                                     Ş
                                                                                   밁
                                                                                                                                                                                                                                                               F;169-647/Domain: acetate-CoA ligase homology <ACL>
                                                                                                                                                                                                                                                                                                                                                                                                    A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C; Accession: JW0107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
                                                                                                                                                                                                Best
                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                      Superfamily: Mycobacterium tuberculosis probable fadD6 protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Species: Mus musculus (house mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                     510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  379 ELTVAYTNYFGSQRFYIQRLVE-ILGGLSTPELTRKNTHLITKSTIGKKFKVAKKWSLDP 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               213 ALDPFNKTMLEYIKENKSNVMCVGKIEDIFNKKGVTEAVHIKNNMDGVDKTLEYMKTDKK 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              438 QNAIIVTNHMWLE
570 LSSLDFLEEVNVYGVPVPGCEGKVGMAAVKLAPGKTFDGQKL-----YQHVRSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        58 WLQFAKLTGFTLM-GRRLKMPMYIAGYKTFDGR 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        54 -----NNRIWLQ 60
                                       58 -----WLQFAKLTGFTLMGRRLKMPM---YIAGYKTFDGRRVDGIIAAYQNPASW 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              σ
                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 KVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHL-QKNTIG----TGRRWK---
                                                                                                                             8 NOFGPNRRVF--IKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLIFTNLVDFDMLYGHRNDPKGYAKALEEFDGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AFNOFGENERVFIK-RVSNVIIHGRRIDIFASKN----FHLOKNTIGTGRR----WKNNRI 57
                                                                                   SQAESNRKLVANVRRVGDLYFNTGDVLTLDQEGFFYFQDRLGDTFRWKGENVSTGEVESV 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20;
                                                                                                                                                                                                                                                                                                                                                                                               1-689 <BER>
                                                                                                                                                                                            12.0%; Score 67;
Similarity 21.7%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15;
                                                                                                                                                                           24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 67.5;
Pred. No. 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18;
                                                                                                                                                                                                                        DB 1; Length 689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PID:g500651; GSPDB:GN00008; MIPS:YHR154w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                           42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1070;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08-Sep-2000
                                                                                                                                                                              24;
                                                                                                                                                                                                                                                                                         acetate-CoA ligase hom
  618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and fatty acid tran
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  53
                                                                                                                                      57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4
                                                                                                                                                                                4
```

Search completed: April 20, 2003, 13:15:37 Job time: 45.5526 secs

*				
۲		1	·	
.:				
•		•		
	*			

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Perfect score:
                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                 115.5
93.55.6
885.55.6
887.1
93.55.6
887.1
93.55.6
887.1
93.55.6
887.1
93.55.6
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
887.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Match
               BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-142-524D-2
558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              April 20, 2003, 12:54:25 ; Search time 20.4474 Seconds (without alignments) 212.987 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MKVTVAFNQFGPNRRVFIKR......FDGRRVDGIIAAYQNPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              112892 seqs, 41476328 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.4 p5 4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
               BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MPA2_CRYJA
SBP_CRYJA
MPA1_JUNAS
MPA1_CUPAR
GLGA_SYNY3
MPA1_CHAOB
DPEP_SOLTU
A29B_DROME
YHV4_YEAST
Y12K_SRST
Y12K_SRST
Y12K_DROSE
       LAC3 THACU
Z136 HUMAN
YMD5 CABELL
PE59 LYCES
ANYK DROMA
ANYK DROMA
ANYK DROMA
AMYK DROME
ANYK DROME
ANYK DROME
ANYK DROME
ANYK DROME
ANYK DROME
ANYK DROER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NU5C_DIGGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NEIMA
                                                                                                                                                                                                                                                  P74521 synechocyst
Q95385 chamaecypar
Q06801 solanum tub
Q46197 drosophila
P38650 saccharomyc
P36289 san miyuel
Q04487 saccharomyc
Q70261 drosophila
Q32131 digitalis
Q32131 digitalis
Q977015 drosophila
Q9707 neisseria m
Q02079 thanatephor
P52737 homo sapien
P34459 caenorhabdi
P15722 lycopersic
P15723 lycopersic
Q9njp0 drosophila
Q16408 drosophila
Q16408 drosophila
Q16408 drosophila
Q16408 drosophila
                                                                                                                                                     076264 drosophila
Q9nnw5 homo sapien
076265 drosophila
P72339 r nodq bifu
                                                                            Q9dgb6
Q9glp1
O71154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P81294 juniperus
Q9scg9 cupressus
P74521 synechocys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P43212 cryptomeria
9 drosophila
9 r nodq bifu
9 homo sapien
                                                                              diatraea sa
                                                                                                   gallus gall
sus scrofa
```

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).

EMBL; D37765; BAA077021.1; -. EMBL; D29772; BAA06172.1; -. HSSP; P26509; DHBC. InterPro; IPR000743; GH28. Pfam; PF00295; Glyco_hydro_28; 1.

36 60.5 10.8 1010 1 CLPP_CHLEU 36 60.5 10.8 2133 1 RSA_FIG 36 60.5 10.8 2133 1 RSA_FIG 36 60.5 10.8 2133 1 RSA_FIG 37 60 10.8 262 1 FLGG AGRPT 40 59.5 10.7 549 1 LLP3_CANRU 40 59.5 10.7 718 1 CDGT_BACSS 41 59.5 10.7 718 1 CDGT_BACSS 42 59 10.6 461 71 RES_COLL 43 59 10.6 461 71 RES_COLL 43 59 10.6 741 1 GRYS_HUMAN 45 59 10.6 741 1 GRYS_HUMAN 45 59 10.6 741 1 GRYS_HUMAN 45 59 10.6 741 1 GRYS_HUMAN 46 59.5 10.7 718 1 CDGT_BACSS 47 1 GRYS_HUMAN 47 59 10.6 741 1 GRYS_HUMAN 48 59 10.6 740 1 GRYS_HUMAN 48 59 10.6 740 1 GRYS_HUMAN 49 512; 40 10.8 27 1 LAT FROM LATE AGE 41 59 10.6 741 1 GRYS_HUMAN 45 59 10.6 741 1 GRYS_HUMAN 45 59 10.6 741 1 GRYS_HUMAN 46 10.4 CRYS_HUMAN 47 59 10.6 741 1 GRYS_HUMAN 48 59 10.6 741 1 GRYS_HUMAN 49 512; 40 10.8 27 1 GRYS_HUMAN 40 10.4 CRYS_HUMAN 40 10.4 CRYS_H	3 8	4888888	RT RX	R R R R R R R R R R R R R R R R R R R	RP RA	RN OCCOUNT DE	RESULT MPA2_C IDM	
\$ 10.8 1010 1 CLPP_CHLEU 10.8 2133 1 FA8_FIG 10.8 2133 1 FA8_FIG 10.8 262 1 FAGG_AGRES 10.7 549 1 LIPI_CANKU 5 10.7 718 1 CDGT_BACGS 5 10.7 718 1 CDGT_BACGS 5 10.7 718 1 CDGT_BACGS 5 10.7 728 1 FAGG_AGRES 10.6 461 1 TBG_NEUCR 10.6 740 1 GNTS_HUMAN 910.6 741 1		Aller	SEQUI MEDLI Sakaç "Ider polle	SEQUI TISSI MEDLI Komiy "cDNI "cDNI Japar Bioch	SEQUITISSI MEDLI Nambi Usui "Moli "Mola Japan FEBS	01-N 01-N 16-O Poss (Maj) Cryp Euka Sper NCBI [1]		00000004444444444444000000000000000000
.8 1010 1 CLPP_CHLEU .8 2133 1 FA8 PIG .8 2133 1 FA8 PIG .8 262 1 FIGG_AGRT5 .9 24318 .8 262 1 FIGG_AGRT5 .9 24318 .8 275 1 VMS2_JCDNV .9 29043 .8 275 1 VMS2_JCDNV .9 29043 .8 275 1 VMS2_JCDNV .9 29043 .9 29044 .9 29043 .9 29044		CATALYT CATALYT GALACTO JUBCELLI SIMILAR (POLYGA)	ENCE OF [NE=903] guchi M ptifica en.";	ENCE FR UE=Poll INE=942 Vama N. Cloni Cloni Lese ce Lese ce		OV-1995 OV-1995 OV-1995 CT-2001 ible pc or poll tomeria ryota; matophy	A CRYJA	თ თ თ თ ი ი ი ი ი ი ი ი ი ი ი ი ი ი ი ი
10 1 CLPP_CHLEU 13 1 FAB_PIG 23 1 RS9_XYLFA 29 12263 24 1 FIGG_AGRT5 25 1 VNS2_TCANRU 29 1334 27 1 YEHB_ECOLI. 27 1 YEHB_ECOLI. 28 1 RNT5_RAT 29 1 1 RNT5_RAT 29 1 1 RNT5_RAT 20 1 1 RNT5_RAT 20 1 1 RNT5_RAT 20 1 1 RNT5_RAT 20 20 8834 21 1 RNT5_HUMAN 21 1 RNT5_HUMAN 22 1 PHS2_RAT 23 1 RNT5_CANRU 23 27 PRT; 514 AA. Created) Last annotation update) Last annotation update) Last annotation update) Last precursor (BC 3.2.1.15) (PG) (Pectors) 12 (Cry j II) (Tapanese cedar). (Tapanese	1 1	309-312 IC ACTI siduron ULAR LO ITY: BE LACTURO	64. B; nou of		N.A. 77; se woto oto ning pol ;124	(Rel. (Rel. (Rel. lygalac en alle japoni Viridir Viridir ta, Con	STI	
PA2379 P12263 Q904338 Q90052 Q94338 Q90052 P31747 P33341 P3377 Q09328 P09812 AAA.		(1990). VITY: R ic link ic link CATION: LONGS T	- 0	PubMed= T., Shi express len."; Res. Co	, AND PubMed ., Tor M.; of th len.";	32, Cre 32, Las 40, Las turonas turonas ergen Cl ica (Jag lantae)	ANDARD;	1010 2133 130 262 275 549 718 826 461 740 741
PA2379 P12263 Q904338 Q90052 Q94338 Q90052 P31747 P33341 P3377 Q09328 P09812 AAA.	1	ando ages SEC	2382 Tani	:8002 .mizu .mizu .ion	PARTI -7926 Lgoe - sec	eatecest se st se st se propanes; Sti		
PA2379 P12263 Q904338 Q90052 Q94338 Q90052 P31747 P33341 P3377 Q09328 P09812 AAA.	-	m hyd in g RETEI MILY	797; ai M majo	972; of C	Q ' 5	1) equen inota inota cecur 2) (2) (3e ce cepto Con	AL	FAB EFAB EFAB EFAB EFAB EFAB EFAB EFAB E
PA2379 P12263 Q904338 Q90052 Q94338 Q90052 P31747 P33341 P3377 Q09328 P09812 AAA.	1	roly ecta or 28 (Mori ry j	EQUEN Hino major	ce uption sor Cry Cry Dhyta	J GNM	CHLE FIG AGRT JCDN CANR CANR CANR BACCS BACCS BACCS BACCS BACCS BACCS BACCS BACCS BACCS BACCS BACCS BACCS BACCS BACCS BACCS
P42379 P1263 Q9pd43 Q9pd43 Q9pd43 Q90453 Q990453 Q990453 Q990453 Q990453 P32947 P33341 P53377 Q08834 Q09328 P09812 I.15) (PG) (Pect Pressaceae; Cryf pressaceae		sis o te an AMYLO	do S	kubo II tl	11 '	odate upda (EC 3 j II) a; Em	ENTS	z ńodka d
P42379 P12263 Q9pd43 Q9pd43 Q9pd43 Q99035 P32947 P331947 P33374 Q09812 P09812 P09812 P09812 P11, F1 P1	-	of 1, nd ot OPLAS		K., he se	Taniç	te) .te) .2.1 bryoj		
P42379 P12263 Q904338 Q904334 P53377 Q08834 Q09382 P09812 F1, F1 F	-		ui M	Kino econd	6	.15) phyta		
42379 17263 189643 1894338 18947 188834 1798834 1798834 1798834 1798832 1798832 1798832 1798832 1798832 1798832 1798832 1798834		pha-I galac OTENI DROL <i>I</i>	., Ma	maj	У , , ,	(PG)		
chlamydomon sus scrofa xylella fas sylella fas signobacteri candida reg candida rug plescherichia neurospora rattus norv thinase) rattus norv crom crom crom crom crom crom crom crom)- tturo (TAL)	CT.	н	~	(Pec achec		237 24237 29pd4 299005 33294 33174 33334 30983 30981
lamydomon s scrofa lella fas lella fas lella fas robacteri nonia rug sillus specifica norvospora trus norvospora leria.	1	nans	н	.lerg	3	ctina ophyt yptom		9 ch 3 su 3 xy 3 xy 5 Ju 7 ca 1 es 1 es 8 hor 2 rat
oofa of a fas fas ruege norv norv		•		0	•	nse)		lamyo s sci lella robao nonia ndida cillu cillu cheri urosp ttus mo sa
				rn)		•		lomon cofa i fas teri trug i rug is sp is sp ichia ora norv pien

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROPEP
ACT SITE
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE; PS00502; POLYGALACTURONASE; 1.
Hydrolase; Glycosidase; Cell wall; Signal; Zymogen; Fruit ripening;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Amyloplast;
                                                                                                                                                                                                                                                                                       Cryptomeria japonica (Japanese cedar).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cryptomer
                                                                                                                                                                                                                                                                                                                                 01-NOV-1990 (Rel.
01-NOV-1995 (Rel.
30-MAY-2000 (Rel.
                                                                                                                                                                                                                                                                                                                                                                 SBP_CRYJA
P18632;
                                                                                                                                                                                                                                                                                                                       Sugi basic protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                              "N-terminal amino acid sequence of pollen (Cry j I)."; FEBS Lett. 239:329-332(1988).
                                                                        MEDLINE=89031257; PubMed=3181436; Taniai M., Ando S., Usui M., Kuri
                                                                                                                          Namba M., Kurose M.,
Submitted (JUL-1994)
                                                                                                                                                                                         of Japanese cedar
TISSUE=Pollen;
                                                             Taniai M., Ar
Matuhasi T.;
                                                                                              TISSUE=Pollen;
                                                                                                       SEQUENCE OF 22-41.
                                                                                                                                                  TISSUE=Pollen;
                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                Biochem. Biophys.
                                                                                                                                                                                                               Kino K.
                                                                                                                                                                                                                           Sone
                                                                                                                                                                                                                                   MEDLINE=94183234; PubMed=8135802;
                                                                                                                                                                                                                                               TISSUE=Pollen
                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.,
                                                                                                                                                                                                      "Cloning and sequencing of cDNA coding
                                                                                                                                                                                                                                                                              NCBI_TaxID=3369;
                                                                                                                                                                                                                                                                                                                                                                                                                                144
                                                                                                                                                                                                                                                                                                                                                                                                                                                   63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12 PNRRVFIKRVSNVIIHGR-----RID--IFASKNFHLOKNTIGTGRRWKNNRIWLQFA 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                   KLTGFTLMGR 72
                                                                                                                                                                                                                                                                                                                                                                                                                                KLTGFTLMGK 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PGNKKFV--VNNLFFNGPCQPHFTFKVDGIIAAYQN-----PASWKNNRIWLQFA 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                         Komiyama
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            514 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    lycoprotein; Allergen.
                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                     16, Created)
32, Last sequence update)
39, Last annotation update)
n precursor (SBP) (Major allergen Cry j 1) (Cry j I).
                                                                                                                                                                                 Res. Comm
                                                                                                                                                                                                                         N., Shimizu K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12
35
37
38
88
98
451
451
504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             460
472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  433
433
514
278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           56645 MW;
                                                                                                                                                                                                                                                         AND PARTIAL SEQUENCE
                                                                                                                            Torigoe K., Fukuda S., Ku
to the EMBL/GenBank/DDBJ
                                                                                                                                                                                 Commun.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F -> L (IN REF. 2).
V -> V (IN REF. 2).
DI -> VV (IN REF. 2).
Q -> K (IN REF. 2).
K -> N (IN REF. 2).
N -> S (IN REF. 2).
N -> S (IN REF. 2).
G -> R (IN REF. 2).
M -> I (IN REF. 2).
M -> I (IN REF. 2).
N -> C (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 115.5; DB 1
Pred. No. 8.8e-06;
                                                                         Kurimoto M., Sakaguchi M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROBABLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POSSIBLE POLYGALACTURONASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                 199:619-625(1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             624611C3FA8D6302 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                          Kusakabe T., Morikubo K.,
                                                   ω
                                                                                                                                                                                                                                                                                                                                                                            374 AA
                                                   major allergen of Japanese cedar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GLCNAC
                                                                                                                                                                                                      for Cry j I, a major allergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                         Kurimoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11;
                                                                                                                               urimoto M.;
databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 514;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
                                                                         Inouye S
                                                                                                                                                                                                                                                                                         Cryptomeria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
```

SEPPPE

Juniperus ashei

(Ozark white cedar)

MPA1_JUNAS STANDARD; PRT; 367 AA.
P81294; Q9ZNU7;
16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Major pollen allergen Jun a 1 precursor.

367 A

MPA1

JUNAS

```
RESULT
                                           밁
                                                                       Ş
                                                                                                     Matches
                                                                                                                     Best
                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the SMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fukuda S., Hanzawa H., Haruyama H., Kurimoto M.;
"Carbohydrate structures of the glycoprotein allergen Cry j I from
Japanese cedar (Cryptomeria japonica) pollen.";
J. Biochem. 117:289-295(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=95003748; PubMed=7920021;
Hijikata A., Matsumoto I., Kojima K., Ogawa H.;
"Antigenicity of the oligosaccharide moiety of th
(Cryptomeria japonica) pollen allergen, Cry jI.";
Int. Arch. Allergy Immunol. 105:198-202(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -!- PTM; CONTAINS FUCOSE/XYLOSE-CONTAINING N-LINKED OLIGOSACCHARIDES.
-!- DISEASE: THIS PROTEIN IS THE MAJOR ALLERGEN OF JAPANESE CEDAR POLLEN, THE MOST COMMON POLLEN ALLERGEN IN JAPAN.
-!- MISCELLANEOUS: THE SEQUENCE OF CRY J I FORM A IS SHOWN HERE. FORM
                                                                                                                                                                                                                                    VARIANT VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=95332249; PubMed=7608114;
Hino K., Yamamoto S., Sano O., Taniguchi Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRUCTURE OF CARBOHYDRATES
                                                                                                                                                                                                                                                                                                                                                                                           Ptam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                             GlycoSuiteDB; P18632; -
InterPro; IPR002022; Am
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; D26544; BAA05542.1; -.
EMBL; D26545; BAA05543.1; -.
EMBL; D34639; BAA07020.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE=Pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Int. Arch. Allergy Immunol.
                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                      VARIANT
                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                      SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                           PIR; A44773; A44773
                                                                                                                                                                           VARIANT
                                                                                                                                                                                                        VARIANT
                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                          VARIANT
                                                                                                                                                                                                                                                                                                                                                                                  llergen;
                                           85 RDRPLWIIFS-----GNMNIKLKMPMYIAGYKTFDGR 116
                                                                     53 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGR
                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY AMB A I/AMB A I/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DIFFERS IN SIX POSITIONS
                                                                                                     19,
                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                  Glycoprotein; Multigene family; Signal.
                                                                                                                                                                                                                                                                                                                           158
191
                                                                                                     Conservative
                                                                                                                                                               AA;
                                                                                                                                                                            12
143
202
221
358
361
                                                                                                                                                                                                                                                                               293
354
                                                                                                                                                                                                                                                                                                                            191
                                                                                                                                                                                                                                                                                                                                                                                                                             Amb_allergen.
                                                                                                                                                               40645 MW;
                                                                                                                   16.8%;
                                                                                                                                                                           /FTId=CAR_000136.
L -> F (IN CRY J 1-B).
H -> Y (IN CRY J 1-B).
S -> T (IN CRY J 1-B).
L -> S (IN CRY J 1-B).
C -> H (IN CRY J 1-B).
K -> Q (IN CRY J 1-B).
                                                                                                                                                                                                                                                                            SUGI BASIC PROTEIN.

N-LINKED (GLCNAC...

N-LINKED (GLCNAC...

/FTIG=CAR 000135.

N-LINKED (GLCNAC...

N-LINKED (GLCNAC...

(FTIG=CAR.O...
                                                                                                     9
                                                                                                                   Score 93.5;
Pred. No. 0.
                                                                                                                                                               74AB25950248F56F
                                                                                                         Mismatches
                                                                                                                     .0022;
                                                                                                                                   DB 1;
                                                                           89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kohno K., Usui M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the Japanese cedar
                                                                                                                                                               CRC64;
                                                                                                                                 Length 374;
                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                              (POTENTIAL).
                                                                                                                                                                                                                                                                                                (POTENTIAL)
                                                                                                         <u>ن</u>
                                                                                                         Gaps
                                                                                                         ۲.
```

```
MPA1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SALAMAN DE BEST DE BEST DE SE LE CONTROL DE BEST DE BE
                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                       MPA1 CUPAR
Q9SCG9;
16-OCT-2001
                                                                                                                                       Major pollen allergen Cup a 1.

Cupressus arizonica.

Cupressus arizonica:

Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cupressus

NCBI_TaxID=49011;
MEDLINE=20571526; PubMed=11122214;
Aceituno E., Del Pozo V., Minguez A., Arrieta I., Cor
Cardaba B., Gallardo S., Rojo M., Palomino P., Lahoz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
CARBOHYD
                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                    CUPAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatice Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ashei) pollen major allergen, Jun a 1.";
J. Allergy Clin. Immunol. 104:608-612(1999).
-!- DISEASE: THIS PROTEIN CAUSES SEVERAL SEASONAL ALLERGIS RHINITIS
                                                                                                                                                                                                                                                                     16-OCT-2001
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; AF106663; AAD03609.1; -. EMBL; AF106662; AAD03608.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires a license agreement (See http://www.isb-sib.ch/announce or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=99414162; PubMed=10482835;
Midoro-Horiuti T., Goldblum R.M., Kurosky A., Goetz D.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   allergen, Jun a 1.";
J. Allergy Clin. Immunol. 104:613-617(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 22-50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Isolation and characterization of the mountain cedar (Juniperus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=99414163; PubMed=10482836;
Midoro-Horiuti T.M., Goldblum R.M., Kurosky A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE=Pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Spermatophyta; Co
NCBI_TaxID=13101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Molecular cloning of mountain cedar (Juniperus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               53 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REKALWIIFSQ-----NMNIKLKMPLYVAGHKTIDGRGAD 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134-140; 160-164; 256-263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Glycoprotein; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lien;
                                                                                                                                                                                                                                                               (Rel. 40,
(Rel. 40,
(Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         367 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22
148
178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         367
148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39824 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AND SEQUENCE OF 31-38; 42-50; 58-80; 60-164; 256-263 AND 322-325.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15.3%;
                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                     Last annotation
                                                                                                                                                                                                                                                                                       Last sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 85.5; DB Pred. No. 0.018;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MAJOR POLLEN ALLERGEN JUN A 1.
                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FC9B81E675662E49 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                    346
                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ashei) pollen major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Wood T.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 367;
                             Cortegano I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88-94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ភ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

```
RESULT
GLGA_SY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                         Kaneko T., Sato S., Kotani H., Tanaka A., Asamizu E., Nakamura Y., Miyajina N., Hirosawa M., Sugiura M., Sasamoto S., Kimura T., Hosouchi T., Matsuno A., Muraki A., Nakazaki N., Naruo K., Okumura S., Shimpo S., Takeuchi C., Wada T., Watanabe A., Yamada M., Yasuda M., Tabata S., "Sequence analysis of the genome of the unicellular cyanobacterium Synechocystis sp. strain PC6803. II. Sequence determination of the entire genome and assignment of potential protein-coding regions.", DNA Res. 3:109-136(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SYNY3
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Glycogen synthase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions at 1s in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cup a 1.";
Clin. Exp. Allergy 30:1750-1758(2000).
Clin. Exp. BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.
                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=1148;
                                                                                                                                                                                                                                                                                                                                                                                              Synechocystis sp. (strair
Bacteria; Cyanobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                            GLGA OR SLL0945.
                                                                                                                                                                                                                                                                                                                                                                                                                                           synthase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Allergen; Glycoprotein.
CARBOHYD 127 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                       MEDLINE=97061201; PubMed=8905231;
                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; AJ243570; CAB62551.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR002022; Amb_allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Molecular cloning of major allergen from Cupressus arizonica pollen:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           53 KNNRIWLOFAKLTGFTLMGRRLKMPMYIAGYKTFDGR
                                                                                                                              FUNCTION: Synthesizes alpha-1,4-glucan chains using ADP-glucose CATALYTIC ACTIVITY: ADP-glucose + {(1,4)-alpha-D-glucosyl}(N) = ADP + {(1,4)-alpha-D-glucosyl}(N+1).

PATHWAY: Glycogen biosynthesis; second step.

SIMILARITY: BELONGS TO THE BACTERIAL/PLANT GLYCOGEN SYNTHASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REKALWIIFSQ-----NMNIKLQMPLYVAGYKTIDGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SYNY3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                346 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               157
272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                  35, Created)
35, Last sequence update)
41, Last annotation update)
(EC 2.4.1.21) (Starch [bacterial glycogen]
                                                                                                                                                                                                                                                                                                                                                                                                            (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           157 N-LINKED (GLCNAC. . 272 N-LINKED (GLCNAC. . . 37589 MW; F1281DCDA1D5DFD0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14.8%;
                                                                                                                                                                                                                                                                                                                                                                                          Chroococcales; Synechocystis
                                                                                                                                                                                                                                                                                                                                                                                                            PCC 6803).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 82.5; DB 1;
Pred. No. 0.038;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          477 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .038;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 346;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL)
                                                                                                                                                                                                                     regions.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      υ
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1;
```

the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and frentities requires a license agreement (See http://www.lsb-sib.or send an email to license@isb-sib.ch).

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -

restrictions

g

for

no

way

.ch/announce/

```
SQ FT KW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                     S
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                              Matches
                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Major pollen allergen Cha o 1 precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Complete proteome. BINDING 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Glycogen biosynthesis; Transferase; Glycosyltransferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; D90915; BAA18625.1; -.
InterPro; IPR001296; Glycos_transf_1.
Pfam; PF00534; Glycos_transf_1; 1.
                                                                                                                                            CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chamaecyparis obtusa (Japanese cypress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q96385;
16-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MPA1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAOB
                                                                                                  CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                              use by non-profit institutions as long as its content modified and this statement is not removed. Usage by an entities requires a license agreement (See http://www.isb-
                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                           major allergen of Chamaecyparis obtusa (Japanese cypress) pollen."; Mol. Immunol. 33:451-460(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Suzuki M., Komiyama N., Itoh M., Itoh H., Sone T., Kuno K., Takagi I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16-OCT-2001 (Rel. 40,
16-OCT-2001 (Rel. 40,
16-OCT-2001 (Rel. 40,
                                                                                                                                                                                                              InterPro; IPR002022; Amb_allergen. Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ohta N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=96265194; PubMed=8676896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE=Pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A., AND PARTIAL SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=13415;
                                                                                    SEQUENCE
                                                                                                                              CARBOHYD
                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                         EMBL; D45404; BAA08246.1; -
                                                                                                                                                                                                                                                                                   or send an email to license@isb-sib.ch).
                                                                                                                                                                                                 Allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31 HQLGHDVRVFMPYYGFI---GDKIDV-----PKEPV-----WKGEAMFQQFAVYQSY 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 75 L---PDTKIPLYLFGHPAFDSRRIYG
  53 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGR 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             local
                                                                                                                                                                                                                                                                                                                                                                                               AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TLMGRRLKMPMYIAGYKTFDGRRVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NOFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGF 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CHAOB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    cation, characterization and molecular cloning of Cha o 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      477 AA;
                                                                                                                                                                                               Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                              22
110
148
178
293
                              Conservative
                                                                                     A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      54346 MW;
                                                                                                              375
110
148
178
293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13.5%;
26.7%;
                                                                                     40258 MW;
                                          13.4%; Score 74.5; DB 40.5%; Pred. No. 0.35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                 Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15; Mismatches
                                                                                               N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 75.5; DB Pred. No. 0.35;
                             7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADP-GLUCOSE (BY SIMILARITY) .
                                                                                                                                                                      MAJOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40C1B6013938E032 CRC64;
                                                                                    81CD91DF7066DBBF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93
                              Mismatches
                                                                                                                                                    POLLEN ALLERGEN CHA O 1.

POTICNAC. . .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                375 AA
                                                                                                                                                                                                                                                                                              noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29;
                             10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 477;
                                                        Length 375;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                              Indels
                                                                                                                                            (POTENTIAL).
                                                                                                    (POTENTIAL)
                                                                                                                 (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19;
                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                             Gaps
                                                                                                                                                                                                                                                                                                                              Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4
                             ۲.
```

```
RESULT 7
DPEP_SOLTU
ID DPEP_S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
  밁
                                     Ş
                                                                               Matches
                                                                                               Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-JUN-1994 (Rel. 29, Created)
01-JUN-1994 (Rel. 29, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
4-alpha-glucanotransferase, chloroplast precursor (EC 2.4.1.25)
(Amylomaltase) (Disproportionating enzyme) (D-enzyme).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of potato. Purification, molecular cloning, and starch metabolism.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DPEP_SOLTU
                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EWBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      J. Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A., AND SEQUENCE OF 53-57; 174-183 AND 247-259 STRAIN=cv. May Queen; TISSUE=Tuber;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- SUBCELLULAR LOCATION: CHLOROPLAST OR AMYLOPLAST.

-I- TISSUE SPECIFICITY: PRESENT IN LEAVES, STEMS, ROOTS, AND STOLED BUT IS MOST ABUNDANT IN DEVELOPING AND MATURE TUBERS.

-!- SIMILARITY: BELONGS TO THE DISPROPORTIONATING ENZYME FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Takaha T., Yanase M., Okada S., Smith S.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=93123262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=4113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Solanum tuberosum (Potato).
                                                                                                                                                                                                                                     Pfam; PF02446; 4A_glucanotrans; 1.
TIGRPAMs; TIGR00217; malQ; 1.
Transferase; Glycosyltransferase; Carbohydrate metabolism;
                                                                                                                                                                                                                                                                                                                                     EMBL; X68664; CAA48630.1; -. PIR; A45049; A45049.
                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                   or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Disproportionating enzyme (4-alpha-glucanotransferase;
                                                                                                                                                                                 CHAIN
                                                                                                                                                                                                 TRANSIT
                                                                                                                                                                                                                    Amyloplast; Chloroplast; Transit
                                                                                                                                                                                                                                                                                                 InterPro; IPR003385; 4A_glucanotrans
                                                                                                                                                                                                                                                                                                                    HSSP; 087172; 1CWY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             85
262 IDIFIAQQFLFQ------KQWKKVR---DYARSKGISIMG---DMPIYV-GYHSAD
                                     31 IDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Biol. Chem. 268:1391-1396(1993).

Biol. Chem. 268:1391-1396(1993).

Biol. Chem. 268:1391-1396(1993).

FUNCTION: MAY ACT DURING STARCH BREAKDOWN TO CONVERT SWALL OLIGOSACCHARIDES INTO LARGER MOLECULES UPON WHICH STARCH PHOSHORYLASE CAN ACT, OR MAY CHANGE THE STRUCTURE OF STARCH PHOSHORYLASE CAN ACT, OR MAY CHANGE THE STRUCTURE OF STARCH MAY GENERATE FROM STARCH AND GLUCOSE OLIGOSACCHARIDES WHICH MAY GENERATE FROM STARCH AND GLUCOSE OLIGOSACCHARIDES WHICH CAN SERVE BITHER AS PRIMERS FOR NEW STARCH PHOSHOENZYME.

CAN SERVE BITHER AS PRIMERS FOR NEW STARCH PHOSHOENZYME.

CAN SERVE BITHER AS PRIMERS FOR NEW STARCH PHOSHOENZYME.

CAN SERVE BITHER AS PRIMERS FOR NEW STARCH PHOSHOENZYME.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         alpha-D-glucan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RERSLWIIFSK-----NLNIKLNMPLYIAGNKTIDGR 116
                                                                               20;
                                                                                                  Similarity
                                                                                                                                                        53
576 AA;
                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PubMed=7678257;
                                                                                                                                                                                 576
                                                                                                                                                            64950 MW;
                                                                                               12.7%; Score 71; 35.1%; Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10;
                                                                                                                                                                               4-ALPHA-GLUCANOTRANSFERASE
                                                                                                                                                                                                      CHLOROPLAST
                                                                                                                                                              A0D16F3A546307BB
                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               576 AA
                                                                                                                    DB 1;
                                                                                 13;
                                                                                                                    Length 576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sferase; EC 2.4.1.25) potential role in
                                                                                                                                                              CRC64;
                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AND STOLONS
                                                                               14;
        304
                                                                                   Gaps
```

RESULT 8 A29B_DROME

```
RX MEDLINE-2019606; pubMed=10731132;
RA Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Adams M.D., Celniker S.E., Holt R.A., Hoskins R.A., Galle R.F.,
RA Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA George R.A., Lewis S.E., Richards S. Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S. Ashburner M., Fleiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Man K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abril J.F., Asbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Boshakov S.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Burtis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Durbin K.J., Evangelista C.C., Ferraz C., Ferriera S., Dunkov B.C., Dunn P.,
RA Durbin K.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W.,
RA Durbin K.J., Evangelista C.C., Ferraz C., Gelbart W.M., Glasser K.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,
RA Harris N.L., Harvey D., Heiman T.J., Wei M.-H., Ibegwam C.,
RA Harris N.L., Harvey D., Heiman T.J., Wei M.-H., Ibegwam C.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Mentulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,
RA Reinert K., Remington K., Saunders R.D.C., Scheeler P., Shen H.,
RA Shee E., Spradling A.C., Stapleton M., Skupski M.P., Smith T.,
RAN Shee E., Spradling A.C., Stapleton M., Skupski M.P., Smith T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Begun D.J., Whitley P., Todd B.L., Waldrip-Dail H.M., (
"Molecular population genetics of male accessory gland
Drosophila.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN=Berkeley;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN=Various strains;
MEDLINE=20556153; PubMed=11102381;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation_update)
Accessory gland protein Acp29Ab precursor.
ACP29AB OR CG17797.
Drosophila melanogaster (Fruit fly).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wolfner M.F., Harada H.A., Bertram M.J., Stelick T.J., Kraus K.W., Kalb J.M., Lung Y.O., Neubaum D.M., Park M., Tram U.K.; "New genes for male accessory gland proteins in Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A., FUNCTION, AND TISSUE SPECIFICITY STRAIN=Canton-S; TISSUE=Male accessory gland; MEDLINE=98135120; PubMed=9474779;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.

MCBI TaxID=7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A29B_DROME STANDARD;
046197; Q9TVT3; Q9TW05; Q9TW06; Q9TW07; Q9U976; Q9U977; Q9U978;
Q9U979; Q9V3Q5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Aguade M.; "Positive selection drives the evolution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=Various strains;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=99282496; PubMed=10353898;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 melanogaster.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein in Drosophila."; ics 152:543-551(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Biochem. Mol. Biol. 27:825-834(1997).
Spradling A.C., Stapleton R., Tector C., Turner R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156:1879-1888 (2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FROM N.A.
            Venter E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of the Acp29AB accessory
    Wang A.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Clark A.G.
Wang X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ħ.:
```

```
between the Swiss Institute of Bioinformatics the European Bioinformatics Institute. There use by non-profit institutions as long as modified and this statement is not removed. Usentities requires a license agreement (See htt or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A., Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L., Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O., Gibbs R.A., Myers B.W., Rubin G.M., Venter J.C., "The genome sequence of Drosophila melanogaster.";

Science 287:2185-2195(2000).

1- FUNCTION: RESPONSIBLE FOR PHYSIOLOGICAL AND BEHAVIORAL CHANGES IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MATED FEMALE FLIES.
-i- SUBCELLULAR LOCATION: Secreted (Probable)
-i- TISSUB SECIFICITY: MAIN CELLS OF THE ACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- SIMILARITY: CONTAINS 1 C-TYPE LECTIN FAMILY DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEMINAL FLUID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U85758; AAB96382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AJ240514;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAB53188.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAB53187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ght. It is produced through a c
Bioinformatics and the EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               oved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   THE ACCESSORY GLAND AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ormatics and the EMBL outst
There are no restrictions
ong as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            collaboration - Louistation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
```

```
EMBL;
                                                                                        EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
                                                                             EMBL;
                                                                                                                            EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                            EMBL;
               AY010531;
AY010532;
AY010533;
AY010534;
                                    AJ240551;
AY010527;
AY010528;
AY010529;
AY010530;
                                                              AJ240548;
AJ240549;
AJ240550;
                                                                             AJ240545;
AJ240546;
AJ240547;
                                                                                                                                                                                AJ240526;
AJ240527;
AJ240528;
                                                                                                                                 AJ240536;
AJ240537;
                                                                                                                                                           AJ240531;
AJ240532;
                                                                                                                                                                                               AJ240524;
AJ240525;
                                                                                             AJ240544;
                                                                                                  AJ240543;
                                                                                                       AJ240542;
                                                                                                             AJ240541;
                                                                                                                  AJ240540;
                                                                                                                       AJ240539;
                                                                                                                            AJ240538;
                                                                                                                                            AJ240535;
                                                                                                                                                 AJ240534;
                                                                                                                                                      AJ240533;
                                                                                                                                                                           AJ240529;
                                                                                                                                                                                                                    AJ240521;
                                                                                                                                                                                                                               AJ240519;
                                                                                                                                                                                                                                         AJ240517;
                                                                                                                                                                                                          AJ240523;
                                                                                                                                                                                                               AJ240522;
                                                                                                                                                                                                                          AJ240520;
                                         AAG32560.
AAG32561.
                                                                                                                                                           CAB53205.
                                                                        CAB53221.
CAB53222.
                                                                                                                       CAB53212.
CAB53213.
                                                                                                                                 CAB53210.
                                                                                                                                                CAB53207.
                                                                                                                                                                                                                                         CAB53190.
CAB53191.
                               AAG32563
                                                         CAB53225
                                                               CAB53224
                                                                   CAB53223
                                                                                  CAB53220
                                                                                             CAB53218
                                                                                                       CAB53216
                                                                                                            CAB53215
                                                                                                                  CAB53214
                                                                                                                                            CAB53209
                                                                                                                                                                           CAB53203
                                                                                        CAB53219
                                                                                                  CAB53217
                                                                                                                                                                                                                               CAB53193
                                                                                                                                                                                                                                                   CAB53189.1;
```

```
RESULT 9
YHV4_YEAS
       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ### PF00059; lectin_c; 1.

### PF00059; lectin_c; 1.

### PF0051TE; PS00615; C TYPE_LECTIN 2; 1.

### PF0051TE; PS00615; C TYPE_LECTIN 2; 1.

### PF0051TE; PS00615; C TYPE_LECTIN 2; 1.

### PF0051TIN_2; 1.

### PF00051TIN_2; 1.

### PF0051TIN_2; 1.

### PF0051TIN_2; 1.

### PF0051TIN_2; 1.

### PF00051TIN_2; 1.

### PF00051TIN_2; 1.

### PF00051TIN_2; 1.

### PF00059; lectin_c; 1.

### PF00051TIN_2; 1.

### PF00059; lectin_c; 1.

### PF00051TIN_2; 1.

### PF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VARIANT
VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                      YHV4 YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR001304; Lectin_C. Pfam; PF00059; lectin_c; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                     YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FlyBase; FBgn0015583; Acp29Ab.
                                                                        SEQUENCE FROM N.A.
STRAIN=S288c / AB972;
MEDLINE=94378003; PubMed=8091229;
                                                                                                                                                                                                                                                                                           01-FEB-1995 (Rel. 31, Created)
01-FEB-1995 (Rel. 31, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Hypothetical 123.0 kDa protein in SPO16-REC104 intergenic region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANT
Johnston M., Andrews S., Brinkman R., Cooper J., Ding H., Dov Du Z., Favello A., Fulton L., Gattung S., Geisel C., Kirsten Kucaba T., Hillier L., Jier M., Johnston L., Langston Y.,
                                                                                                                                                                                            Saccharomycetales;
                                                                                                                                                                                                                          Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
                                                                                                                                                                                                                                              Saccharomyces cerevisiae (Baker's yeast).
                                                                                                                                                                                                                                                                          YHR154W.
                                                                                                                                                                     NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AY010538;
AY010539;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AY010540; AAG32572.1; -.
AY010541; AAG32573.1; -.
AY010542; AAG32574.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T-----CRKWNGHLANIQ--DEKELDGILALAPNNSYW 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QLQPLKI IMRHHASNI KASNNI KMRRFEKVGSRHFHI EKNLMQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QFGPNRRVFIKRVSNV----IIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKL 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AE003621; AAF52665.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGFTLMGRRLKMPMYIAGYKTFDGRRVDGIIAAYQNPASW 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AY010543; AAG32575.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              234 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAG32572.1; -.
AAG32573.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAG32570.1;
AAG32571.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            214
27173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153
                                                                                                                                                                                              Saccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ΜW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A -> S (IN STRAINS LA16 AND LA35).
A -> S (IN STRAINS LA14, LA14, LA16,
LA35, MO2B, MO15B, MO34A, MO36A, MO37A,
MO47A, MO52B, MO58B, MO80B, MA5, MA7,
MA13, MA18, MA20, MA21, MA45, MA48, MA50,
MA52, MA67, WS1, WS6, WS9, WS12, WS16,
WS26, WS47, WS56, ZIM2, ZIM26, ZIM29,
WS26, WS47, WS56, ZIM2, ZIM26, ZIM29,
ZIM30, ZIM32, ZIM37, ZIM42 AND ZIM56).
K -> M (IN STRAINS BERKELEY, LA13, LA14,
LA15, LA16, MO1B, MO8B, MO40B, MO52B,
MA55, WA21, MA45, MA52, MA67, ZIM29,
MA55, WA21, MA45, MA52, MA67, ZIM29,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     K -> N (IN STRAINS MA7, WS16 AND WS26).
K -> R (IN STRAINS LA1, LA3, LA4, LA5, LA14, LA15, LA14, LA15, LA16, LA21, LA25, LA24, LA34, LA15, M01B, M052B, M080B, MA5, MA8, MA13, MA18, MA20, MA21, MA45, MA48, MA52, MA67,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WS19)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 68,5;
Pred. No. 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED (GLCNAC. . .)
N-LINKED (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIM30, ZIM42 AND ZIM56).
E -> D (IN STRAIN MA7).
8954CD3215480F3E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIM26, ZIM29, ZIM30, ZIM56, WS6 AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSORY GLAND PROTEIN ACP29AB
C-TYPE LECTIN (LONG FORM)
                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                    1070
                                                                                                                                                                                                 Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 33; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 234;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (POTENTIAL) .
                                                    Dover J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WFE-AYV 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
```

```
SETTER REPRESENTATION OF THE PROPERTY AND SOCIOUS CONTRIBUTION OF THE PROPERTY AND SOCIETA CONTRIBUTION OF THE PROPERTY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
Y12K_SM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SGD; SO001197; ESC4.
InterPro; IPR001357; BRCT.
Pfam; PF00533; BRCT; 5.
SMART; SM00292; BRCT; 4.
PROSITE; PS50172; BRCT; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboratic between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was modified and this statement is not removed. Usage by and for commercia entities requires a license agreement (See http://www.isb-sib.ch/announce or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Latreille P., Louis E.J., Macri C., Mardis E., Menezes S., Mouser L., Nhan M., Rifkin L., Riles L., St Peter H., Trevaskis E., Vaughan K., Vignath D., Wilcox L., Wohldman P., Waterston R., Wilson R., Vandis M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              p36289;
p36289;
p1-JUN-1994 (Rel. 29, Created)
p1-JUN-1994 (Rel. 29, Last sequence update)
p1-JUN-1996 (Rel. 37, Last annotation update)
possible 12 kDa nucleic acid-binding protein.
San Miguel sea lion virus (serotype 4) (SMSV viruses; ssRNA positive-strand viruses, no DNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMSV4
Y12K SMSV4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; U10397; AAB68978.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Science 265:2077-2082(1994).
                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                     "Nucleotide sequence of the capsid protein gene of two serotypes of San Miguel sea lion virus: identification of conserved and non-conserved amino acid sequences among calicivirus capsid proteins."; Virus Res. 24:211-222(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hypothetical protein; Repeat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR; S46755; S46755.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Complete nucleotide sequence of Saccharomyces cerevisiae chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=92410750; PubMed=1529644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=36407;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            379 ELTVAYTNYFGSQRFYIQRLVE-ILGGLSTPELTRKNTHLITKSTIGKKFKVAKKWSLDP
                                                                                                                                                                                                                                                                                                  I- SIMILARITY: TO FELINE CALICIVIRUS 12 kDa PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    54 ----NNRIWLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 KVTVAFNOFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHL-QKNTIG----TGRRWK---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QNAIIVTNHMWLE 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   117 2
370 4
1070 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123017 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BRCT 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 67.5; DE Pred. No. 7.3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          767931285BB52580 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (SMSV 4).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 no DNA stage; Caliciviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 1070;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      commercia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4
```

EMBL; M87482; AAA16221.1;

PIR; D48562; D48562.

```
EMBL; Z49702;

SGD; S0004724; YMR118C.

R InterPro; IPR000701; Sdh cyt.

R Pfam; PF01127; Sdh Cyt; I.

DR PROSITE; PS01000; SDH CYT 1; 1.

DR PROSITE; PS01001; SDH CYT 2; 1.

KW Hypothetical protein; TriCarboxylic acid cycle; Electron transport; Wheme; Transmembrane; Mitochondrion; Transit peptide.

KW Heme, Transmembrane; Mitochondrion; Transit peptide.

RW Heme; Transmembrane; Mitochondrion; Transit peptide.

TRANSIT 1 ?

POTATIVE SUCCINATE DEHYDROGENASE CYTOCHROME B SUBUNIT.

CYTOCHROME B SUBUNIT.
       밁
                                Ś
                                                              밁
                                                                                         Ś
                                                                                                                                                                                  YM07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOR
                                                                                                                        Matches
                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hunt S., Bowman S., Barrell B.G., Rajandream M.A.;
Submitted (MAY-1995) to the EMBL/GenBank/DDBJ databases.
-i- FUNCTION: MONO-HEME CYTOCHROME B. INVOLVED IN SYSTEM II OF THE MITOCHONDRIAL ELECTRON TRANSPORT CHAIN WHICH IS RESPONSIBLE FOR TRANSFERRING ELECTRONS FROM SUCCINATE TO UBIQUINONE (COENZYME)
                                                                                                                                                                                                                                                                                                                                                                                                           use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This
                                                                                                                                                                                                                                                                                                                                                                                                     or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Saccharomyces cerevisiae (Baker's yeast).
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YM07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YEAST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=S288c / AB972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Putative succinate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            204487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MR118C OR YM9718.17C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  L5-JUN-2002
       57
                                  52
                                                                                          H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17 FIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRI 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                       s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the En European Bioinformatics Institute. There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SIMILARITY: BELONGS TO THE CYTOCHROME B560 FAMILY.
                         WKNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVDGIIAAYQNPASW 104
                                                                                 MKVTV--AFNQFG-PURRVFIKRVS-----NVIIHGRRIDIFASKNFHLQKNTIGTGRR 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUBCELLULAR LOCATION: Integral membrane protein. Mitochondrial
WSSNK-----EEELLVSQRKKRP
                                                        MKATIORVTSVFGVPRASVFVPRISTPFILHNYISNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |: |:| ::|:||: || |: : | | : :| : :|:
FLNSVANAVVEGKKLDL-ASKGLQLKSRALDTERAFNYDRL 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nner membrane (By similarity)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YEAST
                                                                                                                      29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            l Similarity
12; Conserv
                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  110 AA;
                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Rel. 35, Created)
(Rel. 35, Last sequence update)
(Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          dehydrogenase cytochrome B subunit, mitochondrial
                                                                                                                                 11.8%;
25.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12566 MW; 14255D593827418E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11.9%;
29.3%;
                                                                                                                  15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13; Mismatches
                                                                                                                             Score 66; DB 1; Length 196; Pred. No. 1.7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 66.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     196 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                         There are no rest
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.76;
                                                      -RMDLF-SKEFH--NGRVSKSDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1;
-ISPHLTVYEPEMSW
                                                                                                                   35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 110;
                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                           restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL outstation
88
                                                                                                                34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1:
                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                        56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>+</u>
```

SAFE

NU5C DIGGR Q32131; 15-JUL-1998

STANDARD;

PRT;

699

A

6

(Rel. 36, Created)
(Rel. 36, Last sequence update)

RESULT 13 NU5C_DIGGR

```
밁
                                                           밁
                                                                                                                                                                 S
                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AMYR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 12
                                                                                                                           Query Match
Best Local
                                                                                                                Matches
                                                                                                                                                                                           DISULFID
                                                                                                                                                                                                                                                             ACT_SITE
                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                           the European Bioinformatics Institute. The use by non-profit institutions as long a modified and this statement is not removed.
                                                                                                                                                                                 DISULFID
                                                                                                                                                                                                                       DISULFID
                                                                                                                                                                                                                                                                                         CHAIN
                                                                                                                                                                                                                                                                                                      Hydrolase; Glycosidase;
                                                                                                                                                                                                                                                                                                                                                                  FlyBase; FBgn0025060; Dsec\Amyrel.
InterPro; IPR000461; Alpha_amylase.
                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; AF039558; AAC39093.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                    or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Da Lage J.-L.;
Submitted (DEC-1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Arthropoda; Mandibulata; Pancrustacea; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         076261;
16-0CT-2001
                                                                                                                                                                                                                                                                                                                               PRINTS; PR00110;
                                                                                                                                                                                                                                                                                                                                                          Ptam;
                                                                                                                                                                                                                                                                                                                                                                                                    HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 entities requires a license agreement
290 GTGWGFLPSGQAL------TFVDNHDNQRDAGAVLSYKSPRQYK 327
                                                           233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=7238;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Drosophila sechellia (Fruit fly)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMYREL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alpha-amylase-related protein precursor (EC 3.2.1.1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AMYR_DROSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DROSE
                          62 AKLTGFTLMGRRLKMPMYIAGYKTF----DGRRVDGIIAAYQNPASWK 105
                                                                             10 FGPNRRVFIKRVSNVIIHGRRI-----DIFASKNFHLQKNTIGTGRRWKNNRIWLQ-F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mitted (DEC-1997) to the EMBL/GenBank/DDBJ databases. CATALYTIC ACTIVITY: Endohydrolygis of 1,4-alpha-glucosidic linkages in oligosaccharides and polysaccharides. SUBCELLULAR LOCATION: Secreted (Probable). SIMILARITY: BELONGS TO FAMILY 13 OF GLYCOSYL HYDROLASES, ALSO KNOWN AS THE ALPHA-AMYLASE FAMILY.
                                                  FPHNSRPFI--FQEVIDHGHETVSRDEYKDLGAVTEFRFSEE-IGNAFRGNNALKWLQSW 289
                                                                                                                                                                                                                                                                                                                                          PF02806; alpha-amylase_C; 1.
                                                                                                                                                                                                                                                                                                                                                    PF00128; alpha-amylase;
                                                                                                                                                                                                                                                                                                                                                                                                P56634; 1JAE
                                                                                                                           Similarity
                                                                                                                                                                 493 AA;
                                                                                                                                                                                                       156
375
                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                               ALPHAAMYLASE.
                                                                                                                                                                                                       493
207
211
309
103
170
381
                                                                                                                       11.7%;
28.7%;
                                                                                                                                                                55460 MW;
                                                                                                                                                                                                                                                                                                             Carbohydrate metabolism; Signal.
                                                                                                            10;
                                                                                                                                                                                        ALPHA-AMYLASE-RELATED PROTEIN.
BY SIMILARITY.
                                                                                                                      Score 65.5; DI
Pred. No. 5.3;
                                                                                                                                                                             BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                             5E02E633FFB270EB CRC64;
                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  493 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                           (See http://www.isb-sib.ch/announce,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        There are no rest
                                                                                                                                 DB 1;
                                                                                                          42
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Usage,
                                                                                                                                  Length 493;
                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                              γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                         25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              for commercia
                                                                                                      Gaps
                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       118
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR001750; Oxidored q1.
InterPro; IPR002128; Oxidored q1 C.
InterPro; IPR001516; Oxidored q1 N.
Pfam; PP00361; oxidored q1; 1-
Pfam; PP00662; oxidored q1 N; 1.
Pfam; PP00662; oxidored q1 N; 1.
Oxidoreductase; NAD; Plastoquinone; Chloroplast.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for contents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Evidence for the polyphyly of the Scrophulariaceae based chloroplast rbcL and ndhF sequences." f
Ann. Mo. Bot. Gard. 82:176-193(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I; Lamiales; Veronicaceae; Digitalis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Digitalis grandiflora (Yellow foxglove) Chloroplast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NADH-plastoquinone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=38791;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-JUL-1998 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; L36399; AAA84203.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 between
              Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
-- CATALYTIC ACTIVITY: Endohydrolysis of 1,4-alpha-glucosidic linkages in oligosaccharides and polysaccharides.
-- SUBCELLGLAR LOCATION: Secreted (Probable)
                                                         Da Lage J.-L.;
Submitted (JAN-2000)
                                                                                                                                Eukaryota; Metazoa; Arthropoda; Mandibulata; Pancrusta
Insecta; Pterygota; Neoptera; Endopterygota; Diptera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                   077015;
16-0CT-2001
                                                                                                                                                                                                                                                                                                    DROOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Fragment)
                                                                                                                                                                               Drosophila orena (Fruit fly)
                                                                                                                                                                                                                    16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last amoutation update)
                                                                                                                                                                                                                                                                                    AMYR_DROOR
                                                                                       SEQUENCE FROM N.A.
                                                                                                                  NCBI_TaxID=7233;
                                                                                                                                                                                                         Alpha-amylase-related
                                                                                                                                                                                                                                                                                                                                                            678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nn. Mo. Bot. Gard. 82:176-193(1995).
!- CATALYTIC ACTIVITY: NADH + plastoquinone = NAD(+) + plastoquinol.
                                                                                                                                                                                                                                                                                                                                                                                                                        618
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ü
                                                                                                                                                                                                                                                                                                                                                                                        79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation -
SIMILARITY: BELONGS
                                                                                                                                                                                                                                                                                                                                                                                        YIAGYKTFDGRRVDGI 94
                                                                                                                                                                                                                                                                                                                                                                                                                     IFASFKNFDLINSFVKTGPKRSRWDKILTLLYNWSHNRAYIDVFYTTSFTGSIRGLSQLT 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                  IFAS-KNFHLOKNTIGTGRR---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R.G., Reeves P.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        699
699 AA;
                                                                                                                                                                                                                                                                                                                                                           --FDTQVIDGI 688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     oxidoreductase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          79309 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last annotation update)
idoreductase chain 5, ch
                                                                                                                                                                                                           protein
 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----WKNNRIWLQFAKLTGFTLMGRRLKMPM 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 65.5;
Pred. No. 7.
                                                                                                                                                                                                         precursor
                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5685FBA561C63D01 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                      493
 읁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7.8;
                                                                                                                                                                                                            (EC
 GLYCOSYL HYDROLASES, ALSO
                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     chloroplast
                                                                                                                                                                                                            3.2.1.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25;
                                                                                                                                                                 Pancrustacea; Hexapoda;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 699;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                    Brachycera;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (EC 1.6.5.3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       commercia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엵
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
••
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
PARE REPORTED TO THE PROPERTY OF THE PROPERTY 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9_NEIMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RS9 NEIMA
Q9JQZ9;
15-JUN-2002
15-JUN-2002
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHAIN
ACT_SITE
ACT_SITE
ACT_SITE
DISULFID
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute floinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00128; alpha-amylase; 1. Pfam; PF02806; alpha-amylase_C; 1. PRINTS; PR00110; ALPHAAMYLASE.
                                                                                                                                             STRAIN=Z2491 / Serogroup A / Serotype 4A;
MEDLINE=2022556; PubMed=10761919;
Parkhill J., Achtman M., James K.D., Bentley S.D., Churcher C.,
Klee S.R., Morelli G., Basham D., Brown D., Chillingworth T.,
Davies R.M., Davis P., Devlin K., Feltwell T., Hamlin N., Holroyd
Jagels K., Leather S., Moule S., Mungall K., Quail M.A.,
Rajandream M.A., Rutherford K.M., Simmonds M., Skelton J.,
Whitehead S., Spratt B.G., Barrell B.G.,
"Complete DNA sequence of a serogroup A strain of Neisseria
meningitidis Z2491.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-JUN-2002 (Rel. 41, Created)
15-JUN-2002 (Rel. 41, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
30s ribosomal protein S9.
RPSI OR NMA0379 OR NMB2056.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FlyBase; FBgn0021266; Dore\Amyrel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; U96158; AAC39108.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hydrolase; Glycosidase; Carbohydrate metabolism; Signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR000461; Alpha_amylase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HSSP; P56634; 1JAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Neisseria meningitidis (serogroup
Neisseria meningitidis (serogroup
Bacteria; Proteobacteria; beta sub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DISULFID
                                               SEQUENCE FROM N.A. STRAIN=MC58 / Serc
                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=65699,
Tettelin H.,
                          MEDLINE=20175755;
                                                                                                                          Nature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KNOWN AS THE ALPHA-AMYLASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AKLTGFTLMGRRLKMPMYIAGYKTF----DGRRVDGIIAAYQNPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FPHNSRPFI--FQEVIDHGHETVSRDEYKDLGAVTEFRFSEE-IGNAFRGNNALKWLQSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FGPNRRVFIKRVSNVIIHGRRI------DIFASKNFHLQKNTIGTGRRWKNNRIWLQ-F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGWGFLPSGQAL----
                                                                                                                             404:502-506(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
  Saunders N.J.,
                       Serogroup B;
755; PubMed=10710307;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  491;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 493
207
211
309
103
170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         55384 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11.6%;
28.7%;
                                                     œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    erogroup A), and erogroup B). beta subdivision; Neisseriaceae; Neisseria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.

ALPHA-ANYLARSE-RELATED PROTEIN.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence update)
  Heidelberg J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TFVDNHDNQRDAGAVLSYKSPKPYK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 64.5; D
Pred. No. 6.9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         87EE41838B3F15B0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1;
     Jeffries A.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 493;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
          ×.¤.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6
```

```
Search completed: April 20, 2003, 13:07:28 Job time: 23.4474 secs
                                                                                                                                     Ś
                                                                                                                                                                                     밁
                                                                                              밁
                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                        Matches 25;
                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                        InterPro; IPR000754; Ribosomal S9.

Ffam; PF00380; Ribosomal S9; 1.

ProDom; PD001627; Ribosomal S9; 1.

PROSITE; PS00360; RIBOSOMAL S9; 1.

Ribosomal protein; Complete proteome.

SEQUENCE 130 AA; 14426 MW; 8DAEA439DBC491E1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eisen J.A., Ketchum K.A., Hood D.W., Peden J.F., Dodson R.J., Nelson W.C., Gwinn M.L., DeBoy R., Peterson J.D., Hickey E.K., Haft D.H., Salzberg S.L., White O., Fleischmann R.D., Dougherty B.A., Mason T., Ciecko A., Parksey D.S., Blair E., Cittone H., Clark E.B., Cotton M.D., Utterback T.R., Khouri H., Qin H., Vamathevan J., Gill J., Scarlato V., Masignani V., Pizza M., Grandi G., Sun L., Smith H.O., Fraser C.M., Moxon E.R., Rappuoli R., Venter J.C., "Complete genome sequence of Neisseria meningitidis serogroup B strain MC58.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; AL162753; CAB83680.1; -. EMBL; AE002555; AAF42376.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIGR; NMB2056;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -1- SIMILARITY: BELONGS TO THE S9P FAMILY OF RIBOSOMAL PROTEINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Science 287:1809-1815(2000)
                                                                              78 AI-----RHGITRALIDEDAALKPALSQAGEVTRDAREVE 112
                                                                                                                         56 RIWLQFAKLTGFTL----MGRRLKMPMYIAGYKTFDGRRVD 92
                                                                                                                                                                18 RVFLIKGTGQIIVNGRPVDEFFARETSRMVVRQPLVLTENAESFDIKVNVVGGGETGQSG 77
                                                                                                                                                                                                       15 RVF-IKRVSNVIIHGRRIDIFASK-------NFHLQKNTIGTGRRWKNN 55
                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                     11.4%; Score 63.5; DB 1; Length 130; 24.8%; Pred. No. 2; ative 15; Mismatches 32; Indels 2:
                                                                                                                                                                                                                                                        29;
                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                     4;
```

F.			·		
F.					
* 1					
•			1	,	
				•	
		·			
a ·	,		å		
		· •			
·					

```
Minimum DB
Maximum DB
                                                                                                                                                                                  Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100
Listing first 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                    Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Run on:
                                                                                                                                                                         No
                                                                                                                                                                                                                  Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                         Score
                       seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                             SPTREMBL 21:*

1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_vortebrate
13: sp_virus:*
14: sp_unclassifi
15: sp_archeap:*
16: sp_bacteriap:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BLOSUM62
Gapop 10.0,
                                                                                                                                                                                   Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-142-524D-2
558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           671580 segs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          April 20, 2003, 12:56:55; Search time 88.6974 Seconds (without alignments)
      15.3
15.3
15.3
15.3
13.8
13.8
13.8
                                                                                                                                                    16.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MKVTVAFNQFGPNRRVFIKR......FDGRRVDGIIAAYQNPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copyright
                                                                                                                                                                                                                                                            sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                    sp_mhc:*
sp_organelle:*
                                                                                                                                                                                                                                                                                                                                                                                  sp_invertebrate:*
                                                                                                                                                                                                                                                                                                    sp_vertebrate:*
                                                                                                                                                                        Length DB
    374
367
367
367
367
367
367
367
219
219
219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenCore version 5.1.4_p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gapext 0.5
     100%
                                                                                                                                                                        占
    Q93XL6
Q9LLT1
Q9H4S6
Q9M4S6
Q9M4S3
Q9M4S3
Q9M4S3
Q9M4S2
Q9M5L9
Q9W7L9
Q9W7L9
Q9W7L9
Q9W7L9
Q9W7L9
Q9W7L9
                                                                                                                                         Q8RUR1
Q9FY19
                                                                                                                                                                                                                                                                                                                                                                                                                                                     summaries
                                                                                                                                                                                                     SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                243.919 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        671580
 Q9fy19
Q9jx16
Q9j1t2
Q9j1t1
Q9m486
Q9m488
Q9m483
Q9m483
Q9m482
Q9m482
Q9m485
Q9m485
Q9m485
Q9m485
Q9m485
Q9m485
Q9m485
Q9m485
Q9m485
                                                                                                                                                                      Description
                                                                                                                                                  Q8rur1
5 cupressus s
9 arabidopsis
7 arabidopsis
1 oryza sativ
3 brucella me
                                               cupressus s juniperus o thermotoga
                                                                                      cupressus
                                                                             cupressus s
                                                                                                                   juniperus v
                                                                                                                                                  cryptomeria
                                                                                                         juniperus v
                                                                                                                                       juniperus
```

45	44	43	42	41	40	39	38	37	36	35	34	33	32	ه 31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
ტ ე	65	65.5	65.5	65.5	65.5	66	66	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	67		67	67	68	68	68	68	68	68.5	71.5	71.5	72.5
11.6	11.6	•	11.7				11.8		٠		•	11.9	٠	•	•	12.0	12.0	12.0			12.2				12.3	12.8	12.8	13.0
335	280	750	700	699	602	745	188	1429	777	748	747	746	686	493	493	695	689	662	572	690	576	221	199	167	390	700	645	440
N	N	16	œ	8	16	œ	17	IJ	17	œ	œ	œ	œ	ហ	ഗ	œ	11	11	œ	11	10	10	N	N	16	ω	16	10
Q9AHF2	052104	Q9CNQ8	Q9THN4	Q9TLF3	9960BQ	Q9TLC1	Q9Y9P2	Q960A1	029763	Q94YZ8	Q9TLA7	Q9TLB7	P92329	Q9BN06	Q9BH28	Q9TK54	Q91VD5	088694	Q9TI17	Q9ES38	Q9LV91	Q9LFP1	Q8VP01	Q9KHV1	Q97HE6	Q9THR5	Q985Q4	Q949D3
	052104 ehrlichia c	ന		_	Q8u966 agrobacteri	09tici clerodendru	Q9y9p2 aeropyrum p	0960al caenorhabdi	029763 archaeoglob	094vz8 pylaiella 1	paliavana			09bn06 drosophila		tali			3			09lfp1 arabidopsis	O8vp01 bordetella	т.	σ	റ	rhizob	Q949d3 oryza sativ

ALIGNMENTS

```
RESULT 2
Q9FY19
ID Q9FY
                                                                                                                                                   밁
                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 1
                                                                                                      Query Match
Best Local S
Matches 19
                                                                                                                                                                           Signal.
SIGNAL
                                                                                                                                                                                                                                                                                                              Cry j 1 precursor.
CRY J 1.1 OR CRY J 1.2.
Cryptomeria japonica (Japanese cedar).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cryptomer.
 Q9FY19
                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                          Futamura N., Shinohara K.;
"Isolation and characterization of cDNAs encoding major allergen Cry j
1 from Cryptomeria japonica pollen.";
Submitted (MAR-2002) to the EMBL/GenBank/DDBJ databases.
EMBL, AB081309; BAB86286.1; -.
                                                                                                                                                                                                                                                                                                                                                                         Q8RUR1;
01-JUN-2002 (TrEMBLrel. 21, Created)
01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
                                                                                                                                                                 CHAIN
                                                                                                                                                                                                EMBL; AB081310; BAB86287.1; -.
                                                                                                                                                                                                                                                                      TISSUE=POLLEN;
                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                             Q8RUR1
                                                                                                                                                                                                                                                                                                       NCBI_TaxID=3369;
                                                         85
                                                                   RDRPLWIIFS----GNMNIKLKMPMYIAGYKTFDGR 116
                                                                                                                  Similarity
                                                                                                                                                   374 AA; 40720 MW;
PRELIMINARY;
                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                22
                                                                                                                                                               374
                                                                                                              16.8%;
                                                                                                 Score 93.5; DB LV;
Pred. No. 0.017;
Pred. No. 7;
                                                                                                                                                POTENTIAL.
CRY J 1.
; 90D0085D24BF2BD4 CRC64;
PRT;
507
                                                                                                                                                                                                                                                                                                                                                                                                                          æ
                                                                                                     Indels
                                                                                                                        Length 374;
                                                                                                   5
                                                                                                  Gaps
                                                                                                  1;
```

```
RESULT 3
Q93XL6
ID Q93X
ID Q93X
ID Q93X
ID O1-J
ID O1-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 29
  Query Match
Best Locad S
Matches 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HSSP; P26509; LBLL.

InterPro; IPR000743; GH28.

InterPro; IPR0007408; Reg chr condens.

InterPro; IPR000408; Reg chr condens.

InterPro; IPR000408; Reg chr condens.

InterPro; IPR000408; RGC 28; 1.

PROSITE; PS00502; POLYGALACTURONASE; UNKNOWN_1.

PROSITE; PS00626; RCC1_2; UNKNOWN_1.

PROSITE; PS00626; RCC1_2; UNKNOWN_1.

RCC11 wall; Glycosidase; Hydrolase; Signal.

Cell wall; Glycosidase; Hydrolase; Signal.
                                                                                                                                             Signal.
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       major allergen of mountain cedar pollen.";
Biochem. Biophys. Res. Commun. 275:195-202(2000).
-!- SIMILARITY: BELONGS TO FAMILY 28 OF GLYCOSYL HYDROLASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus NCBI_TaxID=13101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=20403896; PubMed=10944464;
Yokoyama M., Miyahara M., Shimizu K., Kino K.,
"Purification, Identification and cDNA cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01.MAR-2001 (TrEMBLrel. 16, Created)
01.MAR-2001 (TrEMBLrel. 16, Last sequence update)
01.UN-2002 (TrEMBLrel. 21, Last annotation updat
Pollen major allergen 2 protein precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Juniperus ashei (Ozark white cedar).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9FY19;
01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q93XL6;
01-DEC-2001 (TrEMBLrel. 19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE=MALE POLLEN;
                                                                                                                                                                                           Butteroni C., Di Felice G., Fint ...,
Butteroni C., Di Felice G., Fint ...,
"Cloning of Cupressus Arizonica major allergen.";
"Cloning of Cupressus Arizonica major allergen.";
Submitted (FEB-2002) to the EMBL/GenBank/DDBJ dat
                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Viridiplantae; Spermatophyta; Coniferops
                                                                                                                                                                                                                                                                                                                                                                                                                                      Cupressus arizonica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               CUP A 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Putative allergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-JUN-2002
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q93XL6
                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                           TISSUE=POLLEN;
                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=49011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POLYGALACTURONASES)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LMGRRLKMPMYIAGY-----KTFDGRRV 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGT---GRRWKNNRIWLQFAKLTGFT 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LMGTGV----IDGQGNRWWSDQCKTINGRTV 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PANKKFY--VNNLVFYGPCQPHFSFK----VDGTIAAYPDPAKWKNSKIWMHFARLTDFN 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AJ404653; CAC05582.1; -. P26509; IBHE.
     16;
                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                22
367 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TrEMBLrel.
(TrEMBLrel.
lergen Cup a
     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                             AA,
                                                                                                                                                                                                                                                                                                                                                                                           Coniferopsida;
                                                                                                                      21
367
                      15.5%;
                                                                                                39809 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               el. 21, Last seq
el. 21, Last anno
p a 1 precursor.
                                                                                                                                                                                                                                                                                                                                                                                         Streptophyta; Emida; Coniferales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last sequence update)
Last annotation updat
     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 91.5;
Pred. No. 0.
                      Score 86.5; DB Pred. No. 0.11;
                                                                                             POTENTIAL.
PUTATIVE ALLERGEN CUP A 1.
; AFF97260423A9F28 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2B2E0AA5E958FE5A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.041;
                                                                                                                                                                                                                                                                                                                                                                                         Embryophyta; Tracheophyta;
es; Cupressaceae; Cupressus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 10;
                                                DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26;
     10;
                                                                                                                                                                                                                    databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tsunoo H.; of Jun a 2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                Length 367;
     Indels
                                                                                                                                                                                                                                                                                                                                                                                         Cupressus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               507;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23;
  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      second
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
     1;
```

```
RESULT 4
Q9LLT2
ID Q9LL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A COCCUPITATION OCCUPITATION OC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                             밁
₽
                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                       Matches
                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q9LLT2;
Q9LLT2;
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q9LLT1;
Q9LLT1;
01-OCT-2000
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last annotation update)
Pollen major allergen 1-2.
Juniperus virginiana (Bastern red cedar).
Eukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Identification of mutations in the genes for the pollen allergens eastern red cedar (Juniperus virginiana)."; Clin. Exp. Allergy 31:771-778 (2001).

EMBL; AF151427; AAF80164.1; -.

InterPro; IPR002022; Amb_allergen.

Pf1MT; PF00544; pec_lyase; 1.

PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                          InterPro; IPR002022; Amb allergen. Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                            MEDLINE=21315424; PubMed=11422137; Midoro-Horiuti T.M., Goldblum R.M., Brooks E.G. "Identification of mutations in the genes for eastern red cedar (Juniperus virginiana)."; Clin. Exp. Allergy 31:771-778(2001). EMBL; AF151429; AAF80166.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last annotation update)
01-UN-2002 (TrEMBLrel. 21, Last annotation update)
Pollen major allergen 1-1.
Juniperus virginiana (Eastern red cedar)
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tuniperus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=21315424; PubMed=11422137;
Midoro-Horiuti T.M., Goldblum R.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=39584;
                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=39584;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             85 REKALWIIFSQ-----NMNIKLOMPLYVAGYKTIDGRGAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 53 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVD 92
  85
                                                 53 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REKTLWIIFSQ-----NMNIKLKMPLYVAGHKTIDGRGAD
REKTLWIIFSQ-----NMNIKLKMPLYVAGHKTIDGRGAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16;
                                                                                                       16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                Similarity
                                                                                                                                                                                                               367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          367 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                             AA;
                                                                                                                                                                                                             AMBALLERGEN.
A; 39708 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             39768 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15.3%;
                                                                                                                             15.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                       9
                                                                                                                                Score 85.5;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 0.14
); Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 85.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0A6AC2F1BAF89586 CRC64;
                                                                                                                                                                                                               DCBD1981A74E4711 CRC64;
                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Brooks E.G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     367
                                                                                                                                0.14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 10;
                                                                                                                                                           DB 10;
                                                                                                     10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10;
                                                                                                                                                                                                                                                                                                                                                                                                                          .G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    92
                                                                                                                                                                                                                                                                                                                                                                                                    the
                                                      92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                 pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            367;
                                                                                                                                                              367;
                                                                                                                                                                                                                                                                                                                                                                                                    allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5.
                                                                                                       <u>ت</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        μ
                                                                                                             ۲
```

```
Q9M4S6
ID Q9M4S6
ID Q9M4
AC Q9M4
CO Q9M4
CO Q1-J
CO Q1
RESULT 8
Q9M4S3
ID Q9M4
AC Q9M4
DT 01-0
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                밁
                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                       Matches
Q9M4S3;
Q9M4S3;
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9M4S4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cupressus sempervirens.
Eukaryota; Viridiplantae; Str.
Spermatophyta; Coniferopsida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Monsalve R.I., Villalba M., Rodriguez R.; "Cloning and expression of Cup s 1, the major of Cupressus sempervirens."; Submitted (APR-2000) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cup s 1 pollen allergen CUPS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q9M4S6;
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; AF257491; AAF72625.1; -.
InterPro; IPR002022; Amb_allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q9M4S6
                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR002022; Amb_allergen. Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases EMBL; AF257493; AAF72627.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
MONSALVE R.I., Villalba M., Rodri
"Cloning and expression of Cup s
of Cupressus sempervirens.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cupressus sempervirens.

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cupressus.

NCBI_TaxID=13469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CUPS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cup s 1 pollen allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam; PF00544; pec
PRINTS; PR00807; A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=13469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   85
                                                                                                                                                              85
                                                                                                                                                                                   53 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVD 92 : :|: |:: | :| ||:| || || ||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       53 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVD
                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                           REKALWIIFSQ-----NMNIKLKMPLYVAGHKTIDGRGAD 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REKALWIIFSQ-----NMNIKLKMPLYVAGHKTIDGRGAD 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16;
                                                                                                                                                                                                                                                       16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                 367 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    367 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (TrEMBLrel. 15, Created)
(TrEMBLrel. 15, Last sequence update)
(TrEMBLrel. 21, Last annotation update)
                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
(TrEMBLrel.
                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ec_lyase; 1.
AMBALLERGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39835 MW;
                                                                                                                                                                                                                                                                        15.3%;
                                                                                                                                                                                                                                                                                                                                                 39934 MW;
15,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Streptophyta; Emkida; Coniferales;
                                                                                                                                                                                                                                                     9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rodriguez R.;
Cup s 1, the major allergen of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9;
Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rodriguez R.;
                                                                                                                                                                                                                                                   Score 85.5; DB 10;
Pred. No. 0.14;
9; Mismatches 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 85.5; DB
Pred. No. 0.14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                              PRT;
                                                                                                                                                                                                                                                                                                                                               974D3011D74E3D6E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B4E9C60108C2C5A3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                367
                                              367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Embryophyta; Tracheophyta; es; Cupressaceae; Cupressus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             major allergen of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 367;
                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5.
                                                                                                                                                                                                                                                       ū
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pollen
                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1:
                                                                                                                                                                                                                                                     1;
```

RESULT
Q99X51
ID Q9
AC Q9
DT 01
DT 01
DT 01
DT 01
OE PU

Q93X51; 01-DEC-2001 01-DEC-2001 01-MAR-2002

I (TrEMBLrel. 19, 0 1 (TrEMBLrel. 19, 1 2 (TrEMBLrel. 20, 1 1lergen jun o 1.

Last sequence update)
Last annotation updat

update)

Created)

Putative allergen jun o JUN 0 1.

Juniperus oxycedrus (Prickly juniper)

Q93X51

PRELIMINARY;

PRT;

367

A

10

```
RESULT

Q9M4S2

ID M99

AC Q99

AC Q99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE DE LE CONTRA LA CON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽¢
   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 16
                                                                                                                                                Query Match
Best Local S
Matches 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9M4S2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Monsalve R.I., Villalba M., Rodriguez R.;
"Cloning and expression of Cup s 1, the major allergen of Cupressus sempervirens.";
Submitted (Apr-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AP257494; AAF72628.1;
EMBL; AP257494; AAF72628.1;
InterPro; IPR00202; Amb allergen.
Pfam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
SEQUENCE 367 AA; 39832 MW; B5DFBF5A61C07A53 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-OCT-2000 (TrEMBLrel. 15, 01-OCT-2000 (TrEMBLrel. 15, 01-UN-2002 (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cupressus sempervirens.
Eukaryota; Viridiplantae; Streptophyta; Emb
Spermatophyta; Coniferopsida; Coniferales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cup s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Spermatophyta; Co
NCBI_TaxID=13469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-OCT-2000 (TrEMBLrel. 15, 01-JUN-2002 (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Monsalve R.I., Villalba M., "Cloning and expression of C of Cupressus sempervirens."; Submitted (APR-2000) to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cupressus sempervirens.
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cupressus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cup s 1 pollen allergen.
                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                    InterPro; IPR002022; Amb allergen. Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; AF257495; AAF72629.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CBI_TaxID=13469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             85 REKALWIIFSQ-----NMNIKLKWPLYVAGHKTIDGRGAD 119
53 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVD
                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            s 1 pollen allergen
                                                                                                                                            16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity 40.0
16; Conservative
                                                                                                                                                                                                                                                                                                    367 AA; 39819 MW;
                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15.3%;
                                                                                                                                                                               15.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cup s 1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 85.5; D
Pred. No. 0.14
9; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9;
                                                                                                                                                9;
                                                                                                                                                Score 85.5; DI
Pred. No. 0.14
9; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rodriguez R.;
Cup s 1, the major allergen of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                    AE7E055A61C07A53 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.14;
                                                                                                                                                                               0.14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 10;
                                                                                                                                                                                                                          DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cupressaceae; Cupressus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10;
                                                                                                                                                10;
   119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92
                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ģ,
                                                                                                                                                                                                                          367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        poller
                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۲,
```

```
RESULT 12
Q9M4S5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 11
Q9WZL9
                                                                                                                                                                                            밁
                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCOMENS OF THE PROPERTY OF TH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 16
                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Cloning of Juniperus oxycedrus major "Cloning of Juniperus oxycedrus major submitted (AUG-2000) to the EMBL/GenE EMBL, AZ293767; CAC484800.1; - TherPro; IPR002022; Amb_allergen. Pfam; PF00544; pec_lyase; 1. SEQUENCE 367 AA; 39808 MW; 5D282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-99287316; PubMed=10360571;

Nelson K.E., Clayron R.A., Gill S.R., Gwinn M.L., Dodson R.J.,

Haft D.H., Hickey E.K., Peterson J.D., Nelson W.C., Ketchum K.A.,

Haft D.H., Utterback T.R., Malek J.A., Linher K.D., Garrett M.M.,

Stewart A.M., Cotton M.D., Pratt M.S., Phillips C.A., Richardson D.,

Heidelberg J., Sutton G.G., Fleischmann R.D., Eisen J.A., White O.,

"Byldence for lateral gene transfer between Archaea and Bacteria from
Q9M4S5;
01-OCT-2000 (TrEMBLrel. 15,
                                                               Q9M4S5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Complete
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9WZL9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genome sequence of Thermotoga maritima."; Nature 399:323-329(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
Lipopolysaccharide biosynthesis protein, putative.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=MSB8 / DSM 3109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR001296; Glycos transf_1. Pfam; PF00534; Glycos_transf_1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; AE001746; AAD35842.1; -. TIGR; TM0760; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=2336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Thermotoga maritima.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE=POLLEN;

TISSUE=POLLEN;

TISSUE=OLLEN;

TISSUE=OLLEN;

TISSUE=OLLEN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Spermatophyta; Co
NCBI_TaxID=69008;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
                                                                                                                                                                                            87
                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                            77
                                                                                                                                                                                                                                                                                            3
                                                                                                                                                                                                                                                                                                                                 28 GRRIDIFASKNEHLQKNTIGTGRRWKNNRIW------LQFAKLTGFTLMGRRLKM 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    53 KNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVD 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               85
                                                                                                                                                                                                                                                                                    GHRVDIYIGDFSHL-----TGKRWSETFGWSFSKDGVDFIVVETREYTGNSLSRLLSSI
                                                                                                                                                                                       DYYRNGRKKIIQKRYDVIIASSPHPFSW
                                                                                                                                                                                                                                      PMYIAGYKTFDGRRVDGIIAAYQNPASW 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REKALWIIFSQ-----NMNIKLKMPLYVAGHKTIDGRGAD 119
                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Thermotogae; Thermotogales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                398 AA;
                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Coniferopsida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             46448 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                   15.1%; 28.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              s oxycedrus major allergen.";
to the EMBL/GenBank/DDBJ dat
                                                                                                                                                                                                                                                                                                                                                                                           11,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pini C.;
                                                                                                                                                                                                                                                                                                                                                                                                                Score 84.5;
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 85.5;
Pred. No. 0
                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Coniferales; Cupressaceae; Juniperus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28C5FE4D55A25912 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5D28204DBFD1B9D7
                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                          367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Thermotogaceae; Thermotoga.
                                                                                                                                                                                                                                                                                                                                                                                                           0.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .14;
                                                       A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA
                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 16; Length 398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 10;
                                                                                                                                                                                                                                                                                                                                                                                         35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 367;
                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                      17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                   2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1;
```

```
RESULT 13
Q9SIQ9
Query Match
Best Local Similarity
"---hes 16; Conserv:
                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                            MEDLINE-2003487; PubMed=10617197;
Lin X., Kaul S., Rounsley S.D., Shea T.P., Benito M.-I., Town C.D., Fujii C.Y., Mason T.M., Bowman C.I., Barnstead M.E., Feldblyum T.V., Buell C.R., Ketchum K.A., Lee J.J., Ronning C.M., Koo H., Moffat K.S., Cronin L.A., Shen M., VanAken S.E., Umayam L., Tallon L.J., Gill J.E., Adams M.D., Carrera A.J., Creasy T.H., Goodman H.M., Somerville C.R., Copenhaver G.P., Preuss D., Nierman W.C., White O., Eisen J.A., Salzberg S.L., Fraser C.M., Venter J.C.; "Sequence and analysis of chromosome 2 of the plant Arabidopsis thaliana.";
                                                              Pfam, Pr00957; synaptobrevin; 1.
PRINTS; PR00219; SYNAPTOBREVN.
PRODOm; PD001229; Synaptobrevin; 1.
SEQUENCE 219 AA; 24965 MW; 7A63C85A140913B9 CRC64;
                                                                                                                         Submitted (MAR-2000) to the EMBL/Ge EMBL, AC007070; AAD23657.1; -. InterPro; IPR001388; Synaptobrevin.
                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAY-2000 (TrEMBLrel. 13,
01-MAY-2000 (TrEMBLrel. 13,
01-DEC-2001 (TrEMBLrel. 19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9SIQ9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases EMBL; AF257492; ARF72626.1; -
InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
SEQUENCE 367 AA; 39894 MW; 5D56FC0E3263B741 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
Monsalve R.I., Villalba M.,
"Cloning and expression of C
"Cluressus sempervirens.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cupressus sempervirens.
Eukaryota; Viridiplantae; Stre
Spermatophyta; Coniferopsida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arabidopsis thaliana (Mouse-ear cress).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Putative synaptobrevin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cup s 1 pollen allergen CUPS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-OCT-2000 (TrEMBLrel. 01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                      STRAIN=CV.
                                                                                                                                                                                                                                Nature 402:761-768(1999).
                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=CV.
                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=3702;
                                                                                                                                                                          Cin X.;
                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              85 REKALWIIFSQ-----NMNIKLEMPLYVAGHKTIDGRGAD 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                      COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                           COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14.6%;
                          14.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15,
21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptophyta; Embryophyta; Tracheophyta; ida; Coniferales; Cupressaceae; Cupressus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              , Rodriguez R.;
Cup s 1, the m
                                                                                                                                                         EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 81.5; DI
Pred. No. 0.4;
10; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                          Score 81; I
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence update)
annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.4;
                                      DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               major allergen of the
                         .24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                      Length 219;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1;
```

Conservative

14;

Mismatches

Indels

2

Gaps

1;

Ś

14

65

```
RESULT 14

049377

ID 04937

AC 04937

AC 04937

DT 01-DE

CO 10-JU

DT 01-JE

CO Sperm

OC Suckax

OC Sperm

OC SPE
RESULT
Q9LWK1
                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.

Shinn P., Chen H., Cheuk R., Kim C.J., Koesema E., Meyers M.C.,

A Banh J., Bowser L., Carninci P., Dale J.M., Goldsmith A.D.,

A Hayashizaki Y., Ishida J., Jiang P.X., Jones T., Kamiya A.,

Karlin-Neumann G., Kawai J., Lam B., Lee J.M., Lin J., Liu S.X.,

A Karlin-Neumann G., Kawai J., Lam B., Lee J.M., Lin J., Liu S.X.,

A Karlin-Neumann G., Kawai J., Lam B., Lee J.M., Lin J., Liu S.X.,

Karlin-Neumann G., Kawai J., Lam B., Lee J.M., Lin J., Liu S.X.,

A Karlin-Neumann G., Kawai J., Lam B., Lee J.M., Lin J., Liu S.X.,

A Karlin-Neumann G., Kawai J., Lam B., Lee J.M., Lin J., Liu S.X.,

A Karlin-Neumann G., Kawai J., Lam B., Lee J.M., Lin J., Liu S.X.,

A Karlin-Neumann G., Kawai J., Jiang B., Satou M., Seki M., Southwick A.,

Pham P.K., Quach H.L., Sakurai T., Satou M., Seki M., Southwick A.,

A Tang C.C., Toriumi M., Yamada K., Yamamura Y., Yu G., Yu S.,

Shinozaki K., Davis R.W., Theologis A., Ecker J.R.,

"Arabidopsis CDNA clones.",

"BELI, AF025332, AAD01748.1,

"BEMLI, AF025322, AAD01748.1,

"BEMLI, AF025322, AAD01748.1,

"BEMLI, AF025322, AAD01748.1,

"BEMLI, AF439840, AAL27509.1,

"BENEL, AF439840, AAL27509.1,

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      049377
049377;
01-JUN-1998
01-JAN-1999
01-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-JUN-1998 (TrEMBLrel. 06, Created)
01-JAN-1999 (TrEMBLrel. 09, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
Synaptobrevin-like protein (AT4G32150/F10N7_40).
F10N7, 40 OR AT VAMP7C OR AT4G32150.
Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
Nikoloff D.M., Somerville C.R.;
Submitted (SEP-1997) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bevan M., Koetter P., Hempel S., Entian
Mewes H.W., Mayer K.F.X., Schueller C.,
Submitted (JAN-1998) to the EMBL/GenBan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR001388; Synaptobrevin, Pfam; PF00957; synaptobrevin; 1. PRINTS; PR00219; SYNAPTOBREVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A. Rose M., Hempel S., Submitted (MAR-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    138
                                                                                                                                                                 195 ILLLLVIIYIA 205
                                                                                                                                                                                                                                                                                                                                   138
                                              15
                                                                                                                                                                                                                                                  71
                                                                                                                                                                                                                                                                                                                                                                                                               14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWK--NNRIWLQFAKLT
                                                                                                                                                                                                                                                                                                                                                                                              RRVF|KRVSNVIIHGRRIDIFASKNFHLQKNTI---GTGRRWKNNRIWLQFAKLTGFTLM 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RDVM/ENIDNILDRGERLELLVDKTANMOGNTFRFRKQTRRFNNTVWWRNCKLT 191
                                                                                                                                                                                                                                                  GRRLKMPMYIA 81
                                                                                                                                                                                                                                                                                                                      RGVMIENIDKVLDRGERLELLVDKTANMQGNTFRFRKQARRFRSN-VWWRNCKLT--VLL 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PD001229; Synaptobrevin; 1.
E 219 AA; 25039 MW; 54C3ECF5C7A3D39E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      »pBis sequencing project;
(MAR-2000) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13.8%; Score 77; DB 10; Length 219; Larity 31.0%; Pred. No. 0.7; Conservative 16; Mismatches 27; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Entian K.-D., Mewes H.W., to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Entian K.-D., Hoheisel J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lemcke K., Mayer K.F.X.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
••
```

```
Search
Job tim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCOCCEPT BENEFIT OF THE SECOND SECON
                                                                                                                                                          片
                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
rch completed: April 20, 2003, 13:12:57 time: 91.6974 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     clone:P0015E04.";
Submitted (MAY-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AP002069; BAA95814.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last seg
01-JUN-2001 (TrEMBLrel. 17, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR00219; SYNAPTOBREVN.
ProDom; PD001229; Synaptobrevin;
SEQUENCE 221 AA; 24970 MW; 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=CV. NIPPONBARE;
Sasaki T., Matsumoto T., Yamamoto K.;
"Oryza sativa nipponbare(GA3) genomic DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Ehrhartoideae; Oryzeae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ESTs AU082579(S2069). Oryza sativa (Rice).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9LWK1;
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9LWK1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001388; Synaptobrevin; Pfam; PF00957; synaptobrevin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=4530;
                                                                                                                                                      198
                                                                                                                                                                                                                                                                                                 139
                                                                                                                                                                                                                          66
                                                                                                                                                                                                                                                                                                                                                              14 RRVFIXRVSNVIIHGRRIDIFASKNFHLQKNTI---GTGRRWKNNRIWLQFAKLT-----
                                                                                                                                               LLTVIIYVVLVFMCHĠĖŤĹ
                                                                                                                                                                                                                                                                                          RTVMIDNIDKVLERGDRLDMLVDKTANMOGNTIRFKROARRFRNT-TWWRNVKLTIALIF 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                              -GFTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13.3%;
                                                                                                                                                  216
                                                                                                                                                                                                                          69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 74; DB 10;
Pred. No. 1.6;
9; Mismatches 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1D573364B8E38571 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                         23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 221;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                         24;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
••
```

.~	•		•
٠	·		
		• •	
		,	
•			
		•	•
		•	
			•
			•

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum DB seq length: 0 Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Run on:
                                                                                                                                                                                                                                                                                                                                                                                                             A Geneseq 101002:*

1: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1984.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
                      10:
11:
12:
13:
14:
15:
16:
16:
17:
17:
19:
19:
20:
21:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 April 20, 2003, 12:54:05; Search time 127.382 Seconds (without alignments) ___109.838 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-142-524D-2
558
                                                                                                           /SIDS2/gcgdata/genesed/genesedp-embl/AA1987.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1988.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1989.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1999.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1991.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1991.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1991.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1991.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1993.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1995.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1996.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1997.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1998.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1998.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1998.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1998.DAT:
/SIDS2/gcgdata/genesed/genesedp-embl/AA1998.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MKVTVAFNQFGPNRRVFIKR......FDGRRVDGIIAAYQNPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.4 p5 4578 Copyright (c) 1993 - 2003 Compugen Ltd.
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*
                                                                                              SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  908470
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Result No.
558 523.5 327.5 213 192.5 162 162 162 149.5 141.5	Score
100.0 93.8 58.7 34.5 29.0 29.0 29.0 26.8	Query Match Length
105 134 80 214 210 96 96 97 186	ength DB
2222222	, pa
AAW27370 AAW27371 AAW27369 AAB69120 AAB69103 AAB69104 AAB69119 AAB69119 AAB69105 AAB69105 AAB69107	ID .
Multi-epitope pept Multi-epitope pept Multi-epitope pept Cedar pollen aller	Description

4.5	44	43	42	41	40	Θ	38	37	36	U G	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20		18	17	16	15	14	1	12	11	
99	99	99	101	101.5	103	103	106.5	106.5	106.5	106.5	106.5	106.5	106.5	106.5	106.5	106.5	106.5	115	115	115	115	115	115.5	115.5	115.5	120.5	120.5	120.5	120.5	120.5	120.5	120.5	120.5	131.5	
17.7	٠	٠		18.2	•		19.1		19.1		•	•	•	19.1	•	19.1	19.1	•	20.6	•	•	•	•	•	•		•				٠		21.6		
79	.47	19	47	47	47	42	93	93	93	88	18	81	81	18	81	81	71	514	514	514	514	460	514	514	514	99	99	99	95	95	95	94	74	47	
21	19	22	19	19	19	22	22	21	21	22	22	22	21	21	21	19	21	20	17	16	15	16	20	17	16	22	21	21	22	2	21	21	21	19	
AAB23880	AAW80352	411	AAW80357	AAW80356	AAW80351	AAB84105	AAB69097	ø	AAB23891	AAB69114	911	AAB69094	AAB23895	AAB23879	AAB23874	AAW80358	AAB23878	AAY25666	AAR93599	AAR69792	AAR53690	AAR69791	AAY25667	AAR81586		AAB69099	390	390	909	AAB23901	AAB23897	AAB23906	AAB23905	AAW80353	
Artificial sequenc	۳- ا	100	allergen pro	allergen pro	Sugi allergen prot	modulatory	Cedar pollen aller		icial	pollen		ar nollen elle	ificial	ficial	icial	Sugi allergen nrot	Artificial semienc	Japanese cedar all	Japan cedar nollen		Japanese cedar pol	Japonicum allergen	Japanese cedar all	od innoc	reported	refra delle	Artificial comiono	icial	2	ificial	ificial	ificial s	ficial sequen	Sugi allergen prot	

ALIGNMENTS

RESULT 1

AAW27370 standard; peptide; 105 AA

Multi-epitope peptide used as immunotherapeutic agent #2

24-MAR-1998 AAW27370;

(first entry)

```
AAW27370
ID AAW2
XX AAW2
AC AAW2
DY* 24-W
XX Mult
KW Mult
KW T-cc
XX Synt
XX WO97
YX 10-1
PX 10-1
XX 10-1
XX ME
PD Dai:
XX WPI
PT Pep
PT Pep
PT Pep
PT Fro
       Peptide immuno:therapeutic agent to treat allergic diseases - contains multi-epitope peptide containing {\tt T} cell epitope regions from different allergens
                                                                             Dairiki K, Iwama A, Kino K, Kume A,
                                                           WPI; 1997-470495/43.
                                                                                                                                 10-MAR-1996;
                                                                                                                                                                                                                                                   Multi-epitope peptide; immunotherapeutic agent; allergic disease; T-cell epitope region; allergen; lymphocyte; immunoglobulin E.
                                                                                                       (MEIP ) MEIJI MILK PROD CO LTD.
                                                                                                                                                        10-MAR-1997;
                                                                                                                                                                                  12-SEP-1997
                                                                                                                                                                                                           WO9732600-A
                                                                                                                                                                                                                                  Synthetic.
                                                                                                                                 96JP-0080702.
                                                                                                                                                          97WO-JP00740
                                                                                 Sone T;
```

X S S S S S S S S S S X X X

Ś

ş 밁

밁

```
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present sequence represents a multi-epitope peptide which is used as a new immunotherapeutic agent. It comprises T cell epitope regions from 2 or more different allergens (preferably linked via arginine or lysine dimers), where the T cell epitope regions: have a positivity index greater than 100 as measured in a patient group responding to the allergen; have at least 70% reactivity with lymphocytes from patients responding to the allergen; and are not reactive with immunoglobulin E (IgE) antibodies from patients responsive to the allergen. The agent can be used to prevent and treat a wide variety of allergic diseases, e.g. by desensitisation. Side effects, e.g. those mediated by IgE, are reduced.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
The present sequence represents a mulfi-epitope peptide which is used as a new immunotherapeutic agent. It comprises T cell epitope regions from or more different allergens (preferably linked via arginine or lysine dimers), where the T cell epitope regions: have a positivity index greater than 100 as measured in a patient group responding to the allergen; have at least 70% reactivity with lymphocytes from patients responding to the allergen; and are not reactive with immunoglobulin E responding to the allergen; and are not reactive with immunoglobulin E (IgE) antibodies from patients responsive to the allergen. The agent can be used to prevent and treat a wide variety of allergic diseases, e.g. b desensitization. Side effects, e.g. those mediated by IgE, are reduced.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Multi-epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW27371 standard; peptide; 134 AA
                                                                                                                                                                                                                                                                              Peptide immuno:therapeutic agent to treat allergic diseases contains multi-epitope peptide containing T cell epitope refrom different allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-MAR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9732600-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Multi-epitope peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAW27371;
                                                                                                                                                                                                                                      Claim 6; Page 32; 58pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                       WPI; 1997-470495/43.
                                                                                                                                                                                                                                                                                                                                                                                                               Dairiki K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12-SEP-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                          (MEIP ) MEIJI MILK PROD CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ocal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MKVTVAFNOFGENRRVFIKRVSNVIIHGRRIDIFASKNEHLQKNTIGTGRRWKNNRIWLQ 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQ 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Page 31; 58pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     105 AA;
                                                                                                                                                                                                                                                                                                                                                                                                               Iwama A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; ilarity 100.0%; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          peptide used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96JP-0080702.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97WO-JP00740
                                                                                                                                                                                                                                                                                                                                                                                                               Kino K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           immunotherapeutic agent; allergic disease;
allergen; lymphocyte; immunoglobulin E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            as immunotherapeutic agent #3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 558; DB 18;
Pred. No. 3.1e-65;
                                                                                                                                                                                                                                                                                                                                                                                                               Kume
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                               P
                                                                                                                                                                                                                                                                                                                                                                                                                  Sone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٥.
                                                                                                                                                                                                                                                                                                         epitope regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                             can
g by
                                                                                                                                                                                                  as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

S

1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQ 60

Matches Best Local

Similarity

Conservative

1;

æ

Indels

25;

Gaps

2

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                      The present sequence represents a multi-epitope peptide which is used as a new immunotherapeutic agent. It comprises T cell epitope regions from or more different allergens (preferably linked via arginine or lysine dimers), where the T cell epitope regions: have a positivity index greater than 100 as measured in a patient group responding to the allergen; have at least 70% reactivity with lymphocytes from patients responding to the allergen; and are not reactive with immunoglobulin E (IgE) antibodies from patients are used to prevent and treat a wide variety of allergen diseases, e.g. be desensitisation. Side effects, e.g. those mediated by IgE, are reduced.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAW27369 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Multi-epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW27369;
                                                                                                                                                                                                                                            Peptide immuno:therapeutic agent to treat allergic diseases -contains multi-epitope peptide containing T cell epitope regifrom different allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9732600-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           T-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Multi-epitope peptide;
                                                                                                                                                                                                                                                                                                   WPI; 1997-470495/43.
                                                                                                                                                                                                                                                                                                                           Dairiki K,
                                                                                                                                                                                                                                                                                                                                                                            10-MAR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                      10-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                12-SEP-1997.
                                                  Sequence
                                                                                                                                                                                                                       Claim 6; Page 31; 58pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                  (MEIP ) MEIJI MILK PROD CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FAKLTGFTLMGRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DGIIAAYONPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FAKLTGFTLMGRR-------LKMPMYIAGYKTFDG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DGIIAAYQNPASWK 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    134 AA;
                                                                                                                                                                                                                                                                                                                           Iwama A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                  80 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                peptide used as immunotherapeutic agent
                                                                                                                                                                                                                                                                                                                                                                              96JP-0080702
                                                                                                                                                                                                                                                                                                                                                                                                      97WO-JP00740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           region;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              93.8%;
78.4%;
            58.7%;
                                                                                                                                                                                                                                                                                                                           Kino K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       immunotherapeutic agent; allergic disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 523.5; DB 1
Pred. No. 1.4e-60;
Score 327.5; DB 1
Pred. No. 3.8e-35;
1; Mismatches 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A
                                                                                                                                                                                                                                                                                                                             Kume
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            lymphocyte; immunoglobulin E.
                                                                                                                                                                                                                                                                                                                             Þ
                                                                                                                                                                                                                                                                                                                              Sone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 18;
                           DB 18;
                                                                                                                                                                                                                                                                                                                              H
                                                                                                                                                                                                                                                              epitope regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----RRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                        can
                                                                                            γģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2;
                                                                                                                                                                                      N
```

```
RESULT 5
                                                                                                                                                                                                                                           Ś
                                                                                            В
                                                                                                                  Ś
                                                                                                                                             뭐
                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                             Matches
                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                   The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acid derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used in the avantification of the present invention
                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                      Example 11; Page 58-59; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                 Novel peptide and its use
                                                                                                                                                                                                                                                                                                                                                                                                                                         N-PSDB; AAF59044
                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2001-185061/19
                                                                                                                                                                                                                                                              in the exemplification of the present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (HAYB)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-MAR-2000; 2000JP-0071710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cedar pollen allergen T cell epitope derived protein SEQ ID NO:61.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Japanese cedar; Cryptomeria japonica; cedar pollen allergen.
T cell epitope; antisuqipollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAB69120
                                               116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAB69120 standard; Protein; 214 AA.
                                                                      92
                                                                                            71
                                                                                                                     51
                                                                                                                                             30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54 -LKLTSGKIA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                    -GIIAAYQNPASWK 128
                                                                  DGIIAAYQNPASWK 105
                                                                                         HVANNNYDPSGKYEGGNIYTKKEAFNVEQFAKLTGFTLMGRA--
                                                                                                                                            MKVTVAFNQFGP
                                                                                                                  ------RWKNNRIWL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55;
                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  epitope; antisugipollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HAYASHIBARA SEIBUTSU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SANKYO CO LTD.
                                                                                                                                                                                                                                           214 AA;
                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99JP-0068316
                                                                                                                                                                                                    38.2%;
                                                                                                                                                                                    Score 213; DB 22;
Pred. No. 1.6e-19;
7; Mismatches 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KAGAKU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----SRRVDGIIAAYQNPASWK 80
                                                                                                             QFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRV 91
                                                                                                                                     DIFASKNEHLÓKNKLTSGKIASCLNYGLV 70
                                                                                                                                                                                                                                                               invention.
                                                                                                                                                                                        8
                                                                                                                                                                                                              Length 214;
                                                                                                                                                                                       Indels
                                                                                                                                                                                      64;
                                                                                       -DPR-- 115
                                                                                                                                                                                   Gaps
                                                                                                                                                             50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       53
                                                                                                                                                                                    ū
```

```
ARESULT 6
AAB69104
ID AAB6
XX
AC AAB6
XX
DT 23-A
XX
DE Ceda
XX
KW Japa
KW T ce
                                                                                                                                                                                                      ৾ঽ
                                                                                                                                                                                         밁
                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 53
Japanese cedar; Cryptomeria japonica; cedar pollen allergen; T cell epitope; antisugipollinosis.
                                     Cedar pollen allergen T cell epitope derived protein SEQ ID NO:13.
                                                                                                                                                                                                                                                                                                                                                                                                                            The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent.

AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used
                                                                    23-APR-2001
                                                                                                                     AAB69104 standard; Protein; 96 AA
                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                    in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 7; Page 39-40; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Novel peptide and its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; AAF59012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2001-185061/19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-MAR-2000; 2000JP-0071710.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cedar pollen allergen T cell epitope derived protein SEQ ID NO:12.
                                                                                                                                                                                     114 --GITAAYQNPASW 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-NOV-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Japanese cedar;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB69103 standard; Protein; 210 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (HAYB ) HAYASHIBARA SEIBUTSU
                                                                                                                                                                                                                91
                                                                                                                                                                                                                                     68 VHVANNNYDPSGKYEGGNIYTKKEAFNVEQFAKLTGFTLMGRA--
                                                                                                                                                                                                                                                                   51
                                                                                                                                                                                                                                                                                             29
                                                                                                                                                                                                                                                                                                                     \vdash
                                                                                                                                                                                                                                                                                                             MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNT-IGTGR-----
                                                                                                                                                                                                             VDGIIAAYQNPASW 104
                                                                                                                                                                                                                                                                 ------RWKNNRIWL----
                                                                                                                                                                                                                                                                                                                                            53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  epitope; antisugipollinosis.
                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                210 AA;
                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99JP-0068316.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cryptomeria japonica; cedar pollen allergen
                                                                                                                                                                                                                                                                                                                                                        34.5%;
                                                                                                                                                                                                                                                                                                                                            7;
                                                                                                                                                                                                                                                                                                                                          Score 192.5; DB 22;
Pred. No. 7.5e-17;
7; Mismatches 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KAGAKU
                                                                                                                                                                                                                                                            -QFAKLTGFTLMGRRLKMPMYIAGYKTFDGRR
                                                                                                                                                                                                                                                                                        FASKNFHLQKNTKLTSGKIASCLNYGL
                                                                                                                                                                                                                                                                                                                                                                   DB 22;
                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                        67;
                                                                                                                                                                                                                                                                                      67
                                                                                                                                                                                                                                                                                                                                        6
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
THE PROOF OF THE P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cryptomeria japonica. Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2001-185061/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JP2000327699-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Novel peptide and its use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-MAR-1999;
                                                                                                                                                                                                                                                                                                                            Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                            Japanese cedar;
T cell epitope;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cedar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB69119;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAB69119 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         in the exemplification of the present invention.
                                                                                                                                                            15-MAR-2000; 2000JP-0071710
                                                                                                                                                                                                                28-NOV-2000.
                                                                                                                                                                                                                                                                         JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                   Cryptomeria japonica
                      (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU. (SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15
                                                                                                                                                                                                                                                                                                                                                                                                      cell epitope; antisugipollinosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₩.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HVANNNYDPSGKYEGGNIYTKKEAFNVEQFAKLTGFTLMGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGR------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----RWKNNRIWL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8; Page 40; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pollen allergen T cell epitope derived protein SEQ ID NO:53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HAYASHIBARA SEIBUTSU KAGAKU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000JP-0071710.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99JP-0068316
                                                                                                         99JP-0068316
                                                                                                                                                                                                                                                                                                                                                                                                                                     Cryptomeria japonica; cedar pollen allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 162; DB 22;
Pred. No. 2.6e-13;
7; Mismatches 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----DIFASKNFHLQKNKLTSGKIASCLNYGLV 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ψ
```

```
Qy °
      5xexexexxxxxxxxxxxxxxxxxxxxxxxxxx222222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 alpha1-alpha1-alpha1-balpha7-alpha1-balpha7-alpha1-balpha7-anino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epicopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present invention describes a peptide, its complex, derivative its polymerizate, where the peptide (I) has a formula of:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Novel peptide and its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-PSDB; AAF59037.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Example 11; Page 54-55; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2001-185061/19
The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha1 a maino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent.
                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB69105 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                     15-MAR-2000; 2000JP-0071710
                                                                                                                                                                                                                                                                                                                                                                               JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                                             Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Japanese cedar; Cryptomeria japonica; cedar pollen allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB69105;
                                                                                                                                                                                         N-PSDB; AAF59013
                                                                                                                                                                                                                                                                                      15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                    28-NOV-2000
                                                                                                                              Claim 9; Page 41-42; 75pp; Japanese
                                                                                                                                                          Novel peptide and its use
                                                                                                                                                                                                         WPI; 2001-185061/19
                                                                                                                                                                                                                                       (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU.
(SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51
                                                                                                                                                                                                                                                                                                                                                                                                                                                        cell epitope; antisugipollinosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HVANNNYDPSGKYEGGNIYTKKEAFNVEQFAKLTGFTLMGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ------RWKNNRIWL------QFAKLTGFTLMGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MKVTVAFNQFGP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        allergen T cell epitope derived protein SEQ ID NO:15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                       99JP-0068316.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 162; DB 22;
Pred. No. 2.6e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----DIFASKNFHLQKNKLTSGKIASCLNYGLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ψ
```

```
Ş
                                   밁
                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAB69102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 9
                                                                                         Matches
                                                                                                         Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                      The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used
                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                          Claim 14; Page 36-37; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                          Novel peptide and its use
                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-185061/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-MAR-2000; 2000JP-0071710
                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28-NOV-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cedar pollen allergen T cell epitope derived protein SEQ ID NO:10.
                                                                                                                                                                  in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cryptomeria japonica.
                                                                                                                                                                                                                                                                                                                                                                                                           (HAYB ) HAYASHIBARA SE
(SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Japanese cedar; Cryptomeria japonica; cedar pollen allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAB69102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAB69102 standard; Protein; 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  in the exemplification of the present invention.
51 RWKNNRIWLQFAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVD--GIIAAYQNPASW 104
                                                   1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNT-----IGTGR 50
                                                                                                    ocal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    57 HVANNNYDPSGKYEGGNÍYTKKEAFNVEQFAKLTGFTLMGR 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              51 -----RWKNNRIWL-----QFAKLTGFTLMGR 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGR------ 50
                                MKVTVAFNQFGP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MKVTVAFNQFGP-----
                                                                                      43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         epitope; antisugipollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40;
                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                        HAYASHIBARA SEIBUTSU KAGAKU.
                                                                                                                                                                                                                                                                                                                                                                      AAF59011.
                                                                                                                                             186 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97 AA;
                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                     99JP-0068316
                                                                                                26.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29.0%;
                                                             Score 149.5; DB 22; CT.,
Pred. No. 2.8e-11;
Mismatches 23; Indels 43; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 162; DB 22;
Pred. No. 2.6e-13;
7; Mismatches (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                          FASKNFHLQKNTKLTSGKIASCLNYGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -DIFASKNFHLOKNKLTSGKIASCLNYGLV 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ٠,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             48; Gaps
                           67
                                                                               4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
```

```
RESULT 11
AAW80353
ID AAW80
XX
AC AAW80
XX,
DT 11-JA
XX
DE Sugi
                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
AAB69117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
               Sugi allergen protein Cryj1 derived epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAF59011 to AAF69062 and AAB69094 to AAB69121 represent sequences used in the complex control of the control of 
                                                                    11-JAN-1999
                                                                                                                  AAW80353;
                                                                                                                                                          AAW80353 standard; peptide; 47 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example 10; Page 46; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Novel peptide and its use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-PSDB; AAF59015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15-MAR-2000; 2000JP-0071710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cedar pollen allergen T cell epitope derived protein SEQ ID NO:29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAB69117 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-NOV-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Japanese cedar; Cryptomeria japonica; cedar pollen allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAB69117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU.
(SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                               53 VHVANNNYDPSGKYEGGNIYTKKEAFNVEQFAKLTGFTLMG
                                                                                                                                                                                                                                                                                                                                       51
                                                                                                                                                                                                                                                                                                                                                                                       14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                   1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNT-IGTGR------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             68 VHVANNNYDPSGKYEGGNIYTKK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2001-185061/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      epitope;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                93 AA;
                                                                                                                                                                                                                                                                                                                               Conservative
                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99JP-0068316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antisugipollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein; 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 141.5; DB 2
Pred. No. 1.2e-10;
7; Mismatches 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                          ----FASKNFHLQKNTKLTSGKIASCLNYGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        --EAFNVERADPRGIIAAYQNPASW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 22; Length 93;
            for T cells.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                 93
                                                                                                                                                                                                                                                                                                                               71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                             52
                                                                                                                                                                                                                                                                                                                                                                                                                        50
```

4;

```
SOXX CCCCCXX PT XX PT XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T cell epitope; sugi allergen proteins Cryj1; Cryj2; treatment; sugi-pollinosis; allergic reaction; pollen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JP10259198-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAW80339-58 represent epicopes for T cells, derived from the sugi
allerge proteins Cryj1 (AAW80339-44, AAW80350-53 and AAW80356-58) ar
Cryj2 (AAW80345-49 and AAW80354-55). The peptides are useful for the
treatment of sugi-pollinosis, an allergic reaction of the body to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29-SEP-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 10; Page 5; 21pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sugi-pollinosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A linked T cell epitope peptide - used for the treatment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24-DEC-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1998-577037/49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (HAYB ) HAYASHIBARA SE
(SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                           21-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Peptide synthesis; chemical synthesis; solid phase synthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Artificial sequence designed peptide #26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAB23905;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB23905 standard;
                                                          WPI; 2000-602106/57.
                                                                                                                                                                                                                                                                                15-MAR-2000; 2000WO-JP01584
                                                                                                                                                                                                                                                                                                                                                                                            WO200055182-A1
Chemically synthesizing a peptide by solid phase synthesis by adding
                                                                                                            Kawaguchi J,
                                                                                                                                                                                                                              15-MAR-1999;
                                                                                                                                                                       (SANY ) SANKYO CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13 MKVTVAFNQFG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MKVTVAFNOFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLOKNTIGTGRRMKNNRIWLQ 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FAKLTGFTLMGRRLKMPMYIAGYKTFDGRRVDGIIAAYQNPASW 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HAYASHIBARA SEIBUTSU KAGAKU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96JP-0343441.
                                                                                                            Serizawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97JP-0353448.
                                                                                                                                                                                                                           99JP-0067917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  peptide; 74 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            23.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 131.5; DE
Pred. No. 1e-09;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -GIIAAYQNPASW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FASKNFHLQKNT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2
```

```
RESULT 13
AAB23906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
«¥88888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present invention describes a method for chemically synthesising a peptide by solid phase synthesis. The method comprises processing a carrier resin to which the C-terminal amino acid derivative of the target peptide has been preliminarily bonded is characterised by adding a protective group to inactivate a part of alpha-amino groups of an amino acid capable of undergoing a peptide extension reaction on the carrier resin. The method is useful for synthesising a peptide by solid phase synthesis. Long chain peptides can be readily synthesised in with a high success ratio without using the segment condensation method or gene manipulations. The present sequence represents an amino acid peptide sequence given in an example from the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protective group to inactivate part of alpha amino group of an amino
acid group -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 6; Page 23; 38pp; Japanese.
         The present invention describes a method for chemically synthesising a peptide by solid phase synthesis. The method comprises processing a carrier resin to which the C-terminal amino acid derivative of the target peptide has been preliminarily bonded is characterised by adding a protective group to inactivate a part of alpha-amino groups of an amino acid capable of undergoing a peptide extension reaction on the carrier resin. The method is useful for synthesising a peptide by solid phase synthesis. Long chain peptides can be readily synthesised in with a high success ratio without using the segment condensation method or gene manipulations. The present sequence represents an amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB23906;
                                                                                                                                                                                                                                                    protective acid group
                                                                                                                                                                                                                                                                     Chemically synthesizing a peptide by solid phase synthesis by adding protective group to inactivate part of alpha amino group of an amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200055182-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Peptide synthesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Artificial sequence designed peptide #27.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB23906 standard; peptide;
                                                                                                                                                                                                                                                                                                                              WPI; 2000-602106/57.
                                                                                                                                                                                                                                                                                                                                                                 Kawaguchi J,
                                                                                                                                                                                                                                                                                                                                                                                                                                       15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-MAR-2000; 2000WO-JP01584
peptide sequence given in an example from the present invention
                                                                                                                                                                                                                      Example 6; Page 24; 38pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                   (SANY ) SANKYO CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MKVTVAFNOFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLOKVTIGTGR 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          74 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                  Serizawa N;
                                                                                                                                                                                                                                                                                                                                                                                                                                       99JP-0067917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chemical synthesis; solid phase synthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----DIFASKNFHLQKNKLTSGK 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 120.5; DB 2
Pred. No. 5.1e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 74;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
```

۲.

```
Χü
                                                                                  밁
                                                                                                         Ś
                                                                                                                                                                                              RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 14
AAB23897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                       Matches
                                                                                                                                                    Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                  The present invention describes a method for chemically synthesising a peptide by solid phase synthesis. The method comprises processing a carrier resin to which the C-terminal amino acid derivative of the target peptide has been preliminarily bonded is characterised by adding a protective group to inactivate a part of alpha-amino groups of an amino acid capable of undergoing a peptide extension reaction on the carrier resin. The method is useful for synthesising a peptide by solid phase synthesis from chain marridae can be readily continued by solid capable.
    AAB23901 standard; peptide; 95 AA
                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                peptide sequence given in an example from the present invention
                                                                                                                                                                                                                              phase synthesis. Long chain peptides can be readily synthesised in with a high success ratio without using the segment condensation method or gene manipulations. The present sequence represents an amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                Chemically synthesizing a peptide by solid phase synthesis by adding protective group to inactivate part of alpha amino group of an amino
                                                                                                                                                                                                                                                                                                                                                                                            Example 5; Page 34-35; 38pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                        acid group
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kawaguchi J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Peptide synthesis; chemical synthesis; solid phase synthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15-MAR-2000; 2000WO-JP01584.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200055182-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Artificial sequence designed peptide SEQ ID NO:5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAB23897;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAB23897 standard; peptide; 95 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                 27
                                                                                                 1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGR 50
                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26 MKVTVAFNQFGP---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNEHLQKNTIGTGR 50
                                                                                 MKVTVAFNQFGP--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000-602106/57.
                                                                                                                                     26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                           95 AA;
                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   94 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Serizawa N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99JP-0067917.
                                                                                                                                                                                                                            The present sequence represents an amino acid
                                                                                                                                              21.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21.6%;
52.0%;
                                                                                                                              Score 120.5; DB 21;
Pred. No. 7.2e-08;
3; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 120.5; Db 21, bred. No. 7.1e-08;
                                                                        -----DIFASKNFHLQKNKLTSGK 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -DIFASKNFHLOKNKLTSGK 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 21; Length 94;
                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                          Length 95;
                                                                                                                               19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                              1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1;
```

Search completed: April Job time : 128.382 secs

20,

2003, 13:06:03

1;

```
밁
                                  5
                                                                                                                              Matches
                                                                                                 Query Match
                                                                                                                                                rarget peptide has been preliminarily bonded is characterised by adding a protective group to inactivate a part of alpha-amino groups of an amino acid capable of undergoing a peptide extension reaction on the carrier resin. The method is useful for synthesising a peptide by solid phase synthesis. Long chain peptides can be readily synthesised in with a high success ratio without using the segment condensation method or gene manipulations. The present sequence represents an amino acid peptide sequence given in an example from the present invention.
                                                                                                                           Sequence
                                                                                                                                                                                                                                                            The present invention describes a method for chemically synthesising a peptide by solid phase synthesis. The method comprises processing a carrier resin to which the C-terminal amino acid derivative of the target peptide has been preliminarily bonded is characterised by adding
                                                                                                                                                                                                                                                                                                                                                                                  Chemically synthesizing a peptide by solid phase synthesis by adding protective group to inactivate part of alpha amino group of an amino
                                                                                                                                                                                                                                                                                                                                          Example 5; Page 21-22; 38pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-MAR-2000; 2000WO-JP01584.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Peptide synthesis; chemical synthesis; solid phase synthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2000-602106/57.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (SANY ) SANKYO CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200055182-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Artificial sequence designed peptide #23.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-JAN-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAB23901;
      27
                      1 MKVTVAFNQEGENRRVFIKRVSNVIIHGRRIDIFASKNEHLQKNTIGTGR 50
                                                                               Local
                                                               26;
                                                                               Similarity
                                                                                                                             95 AA;
                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Serizawa N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99JP-0067917.
                                                                            21.6%;
52.0%;
                                                             ω
••
                                                          Score 120.5; DB 2
Pred. No. 7.2e-08;
3; Mismatches 2
-DIFASKNFHLOKNKLTSGK 57
                                                                                         DB 21;
                                                          ν
•
                                                          Indels
                                                                                       Length 95;
                                                        19;
                                                       Gaps
```

, ,	

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Searched:
                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                      188
148.5
1118.5
1110.5
1110.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  283224 seqs, 96134422 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          April 23, 2003, 18:04:50 ; Search time 17 Seconds (without alignments) 757.765 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIR 73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MKVTVAFNQFGPNRRVFIKR.....KFIRRVDGIIAAYQNPASWK 134
                      Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-142-524D-3
711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen_Ltd.
                  JC2124
JC2124
JC2129
JC2498
JC72498
JC7366
JC736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  283224
                                                                                                                                                                                                                                                                                                                                                                                                                            polygalacturonase polygalacturonase pectate lyase (EC Jun a 2 protein - pectate lyase-like pectate lyase-like pectate lyase-like allergen Amb a I.3 allergen Amb a I.3 allergen Amb a I.3 pectate lyase (EC hypothetical prote pectate lyase (EC hypothetical pectate lyase (EC hypothetical pectate lyase (EC hypothetical pectate lyase (EC hypothetic
pectate lyase (EC allergen Amb a I.2 probable pectate l allergen Amb a I.2 probable pectate 1.2 probable pectate 19ase (EC allergen Amb a I.4 pectate 19ase (EC pectate 19ase (EC pectate 19ase (EC probable pectate 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             major allergen Cry
major allergen Cry
Cry j II protein -
second major aller
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description
```

	• • • • • • • • • • • • • • • • • • •
	84 82.5 82.5 82.7 81 78.5 76.5 74.5 74.5 71.5 70.5
	11.8 11.6 11.6 11.6 11.6 11.7 11.0 11.0 11.0 11.0 10.0 10.0 10.0
	390 394 449 394 219 274 418 341 648 398 398 398 398 398 318 398 318 318 318 318 318 318 318 318 318 31
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
ALIGNMENT	H86253 S27098 S27098 T49116 T49116 T49106 T49165 T19701
NTS	hypothetical prote pectate lyase like pectate lyase (EC pectate lyase)

RESULT 2 JC2123 JC2123 JC2123 JC2123 JC3pecies: Cryptomeria japonica (Japanese cedar) C;Species: Cryptomeria japonica (Japanese cedar) C;Sate: 14-Jul-1994 #sequence_revision 14-Jul-1994 #text_change 21-Jul-2000 C;Accession: JC2123; PC2065 R;Sone, T:; Komiyama, N.; Shimizu, K.; Kusakabe, T.; Morikubo, K.; Kino, K. Blochem. Biophys. Res. Commun. 199, 619-625, 1994 A;Title: Cloning and sequencing of cDNA coding for Cry j I, a major allergen of Japanese A;Reference number: JC2123; MUID:94183234; PMID:8135802 A;Accession: JC2123 A;Accession: JC2123 A;Cross-references: GB:D26544; NID:94183234; PMID:8135802 A;Experimental source: pollen A;Accession: PC2065 A;Mote: the authors described carbohydrate binding site for residue 279 C;Superfamily: pectate lyase LAT59 C;Superfamily: pectate lyase LAT59 C;Keywords: glycoprotein; pollen	Query Match Query Match Query Match Query Match Best Local Similarity 71.2%; Pred. No. 1.9e.12; Matches 37; Conservative 4; Mismatches 11; Indels 0; Gaps 0; Qy 73 RPLWIIFSGNMNIKLKWPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124	A; Molecule type: mRNA A; Rolecule type: mRNA A; Residues: 1-374 <son> A; Cross-references: GB:D26545; NID:g49363; PIDN:BAA05543.1; PID:g493634 A; Experimental source: pollen A; Note: the authors described carbohydrate binding site for residue 279 C; Superfamily: pectate lyase LAT59 C; Keywords: glycoprotein; pollen F;1-21/Domain: signal sequence #status predicted <sig> F;22-374/Product: major allergen Cry j I (clone pCCI-15) #status predicted <mat> F;158,191,293,354/Binding site: carbohydrate (Asn) (covalent) #status predicted</mat></sig></son>	RESULT 1 JC2124 major allergen Cry j I precursor (clone pCCI-15) - Japanese cedar (C;Species: Cryptomeria japonica (Japanese cedar) C;Species: Cryptomeria japonica (Japanese cedar) C;Date: 14-Uil-1994 #sequence_revision 14-Uil-1994 #text_change 21-Uil-2000 C;Accession: JC2124 R;Sone, T.; Komiyama, N.; Shimizu, K.; Kusakabe, T.; Morikubo, K.; Kino, K. Biochem. Biophys. Res. Commun. 199, 619-625, 1994 A;Title: Cloning and sequencing of cDNA coding for Cry j I, a major allergen of Japanese A;Reference number: JC2123; MUID:94183234; PMID:8135802

```
Cry j II protein - Japanese cedar
C;Species: Cryptomeria japonica (Japanese cedar)
C;Date: 07-May-1995 #sequence_revision 21-Jul-1995 #text_change 28-May-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;1-21/Domain: signal sequence \#status predicted <SIG>F;22-374/Product: major allergen Cry j I (clone pCCI-2-2) \#status predicted <MAT>F;158,191,293,354/Binding site: carbohydrate (Asn) (covalent) \#status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R;Namba, M.; Kurose, M.; Torigoe, K.; Hino, K.; Taniguchi, Y.; Fukuda, S.; Usui, M.; Kners Lett. 353, 124-128, 1994
A;Title: Molecular cloning of the second major allergen, Cry j II, from Japanese cedar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Species: Cryptomeria japonica (Japanese cedar)
C;Date: 16-Mar-1995 #sequence revision 26-May-1995 #text_change 21-Jul-2000
C;Accession: JC2498; PC3346; A60147
R;Komiyama, N.; Sone, T.; Shimizu, K.; Morikubo, K.; Kino, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S48730
                                                                                                                                                                                                    A;Molecule type: protein
A;Residues: 52-61 <KO2>
R;Sakaguchi, M.; Inouye, S.; Taniai, M.; Ando, S.; Usui, M.; Matuhasi,
R;Sakaguchi, M.; 1990
A;Title: Identification of the second major allergen of Japanese cedar
A;Reference number: A60147; MUID:90342988; PMID:2382797
A;Accession: A60147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Biochem. Biophys. Res. Commun. 201, 1021-1028, 1994
A;Title: cDNA cloning and expression of Cry j II, the second major allergen of A;Reference number: JC2498; MUID:94271186; PMID:8002972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Reference number: S48730; MUID:95010777; PMID:7926035
A;Accession: S48730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C; Accession: S48730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
A; Residues: 1-514 < KOM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: GB:D37765; NID:g577695; PIDN:BAA07021.1; PID:d1007598; PID:g577696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Molecule type: mRNA
A;Residues: 1-514 <NAM>
                                                                                                                                                                                                                                                                                                                                                                A; Accession: PC2346
                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: DDBJ:D29772; NID:g506857; PIDN:BAA06172.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Accession: JC2498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       major allergen Cry j II precursor - Japanese cedar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     91 MYIAGYKTFDG------RRAEVSYVHVNGAKFIRRVDGI 123
Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGRRPLWIIFSGNMNIKLKMP 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IDIFASKNFHLQKNTIGTG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ICGPGHGISIGSLGRENSRAEVSYVHVNGAKFIDTQNGL 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26.4%;
71.2%;
20.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 148.5; DB 2; Length 514; Pred. No. 4.9e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 188; DB 2; Length 374; Pred. No. 1.9e-12;
Score 148.5; DB 2
Pred. No. 4.9e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----- DDCVAIGTGSSNIVIEDL 272
                     DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                     Length 514;
                                                                                                                                                                                                                                                                                                                                                                                        PID:g506858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                      cedar
                                                                  predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                   pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2
```

```
₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                    pectate lyase (EC 4.2.2.) F28P10.100 - Arabidopsis thaliana N;Alternate names: protein F28P10.100 C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 23-Apr-1999 #sequence_revision 23-Apr-1999 #text_cha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: protein A; Residues: 51-62 < MO2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-514 < MOR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Mori, T.; Yokoyama, M.; Komiyama, N.; Okano, M.; Kino, K. Biochem. Biophys. Res. Commun. 263, 166-171, 1999
A;Title: Purification, identification, and cDNA cloning of A;Reference number: JC7100; MUID:99417540; PMID:10486272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 polygalacturonase Cha o 2 - Japanese cypress C; Species: Chamaecypris obtusa (Japanese cyp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
밁
                                                                                                                             C;Superfamily: province lyase C;Keywords: carbon-oxygen lyase
                                                                                                                                                                                                                                                                                                                                A; Reference number: Z15793
A; Accession: T06728
                                                                                                                                                                                                                                                                                                                                                                                    R; Quetier, F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Accession: JC7100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C; Accession:
                                                                                                                                                                             A; Introns: 46/2; 3:
A; Note: F28P10.100
                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-542 < QUE >
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T06728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Accession: PC7026
                                                                                                                                                                                                                     A; Map position: 3
                                                                                                                                                                                                                                                          A; Experimental source:
                                                                                                                                                                                                                                                                             A;Cross-references:
                                                                                                                                                                                                                                                                                                                                                                    submitted to the Protein
                                                                                                                                                                                                                                                                                                                                                                                                       C; Accession: T06728
                                                                        Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;Date: 03-Dec-1999 #sequence_revision 03-Dec-1999;Accession: JC7100; PC7026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                Superfamily: pectate lyase LAT59
                                                                                                                                                                                                                                          Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                          Query Match
139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                236 IDIFASKRFHIEKCVIGTG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91 MYIAGYKTF-----DGRRAEVSYVHVNGAKFIRRVDGI 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31 IDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGRRPLWIIFSGNMNIKLKMP 90
                                    67 FTLMGRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHV--NGAKFIRRVDGII 124
                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MYIAGYKTFDG-----RRAEVSYVHVNGAKFIRRVDGI 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ICGPGHGISIGSLGRDNSRAEVSHVHVNRAKFIDTQNGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ICGPGHGISIGSLGRENSRAEVSYVHVNGAKFIDTQNGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IDIFASKNEHLQKNTIGTG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGRRPLWIIFSGNMNIKLKMP 90
YGVIQEEPLWIVFSSNMLIRLKQELIINSYKTLDGRG---SAVHITGNGCLTLQYVQHII 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
35; Conserv
                                                                                                                                                                                                                                                                                                                                                                                      Choisne, N.; Robert, C.; Brottier,
                                                                                                                                                                                                    346/3; 413/2; 480/2
                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                        EMBL:AL049655
ce: cultivar C
                                                                                     15.5%;
                                                                                                                                                                                                                                                                                                                                                                   Sequence Database, April 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10;
                                                                                                                                                                                                                                                          Columbia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                        9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 118.5; DB 2;
Pred. No. 8.3e-05;
0; Mismatches 25;
                                                                      Score 110.5; DB 2;
Pred. No. 0.00064;
9; Mismatches 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                        23-Apr-1999 #text_change 23-Jul-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cypress)
                                                                                                                                                                                                                                                           BAC
                                                                                                                                                                                                                                                          clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21;
                                                                                                                                                                                                                                                                                                                                                                                        P.; Wincker,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --- DDCVAIGTGSSNIVIEDL 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --DDCIAIGTGSSNITIKDL 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #text_change
                                                                                                                                                                                                                                                           F28P10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 514;
                                                                                                       Length 542;
                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cha
                                                                                                                                                                                                                                                                                                                                                                                        ۳.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29;
                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ρ
                                                                                                                                                                                                                                                                                                                                                                                        Cattolico,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             second
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                        2
                                                                                                                                                                                                                                                                                                                                                                                        L.; Artigu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             major all
```

RESULT

```
pectate lyase (EC 4.2.2.2) - tomato
C;Species: Lycopersicon esculentum (tomato)
C;Date: 19-Mar-1997 #sequence_revision 19-Mar-1997 #text_change 23-Jul-1999
                                                                                          S12209
                                                                                                                                                                                융
                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pectate lyase-like protein - Arabidopsis thaliana
N;Alternate names: protein T4D2.120
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 04-Feb-2000 #sequence_revision 04-Feb-2000 #text_change 02-Sep-2000
C;Accession: T46165
R;Nyakatura, G; Fartmann, B; Dauner, D; Sterr, W; Holland, R; Weichselgartner, M;
submitted to the Protein Sequence Database, December 1999
A;Reference number: Z23025
                                                                                                             RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                   C; Superfamily: pectate lyase LAT59
                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Introns: 27/2; 112/2; 182/1; 265/3; 329/3; 399/2
A;Note: T4D2:120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Experimental source: cultivar Columbia; BAC clone T4D2 C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Residues: 1-463 < NYA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Accession: T46165
A;Status: prelimina:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Residues: 55-63 <YO2>
C;Comment: This protein, a second major allergen of mountain cedar pollen, which is invo o the polygalacturonase family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Yokoyama, M.; Miyahara, M.; Shimizu, K.; Kino, K.; Tsunoo, H. Biochem. Biophys. Res. Commun. 275, 195-202, 2000
A;Title: Purification, identification, and cDNA cloning of Jun a 2, the second major all A;Reference number: JC7366
A;Accession: JC7366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Map position: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: mRNA
A; Residues: 1-507 < YOK>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Species: Juniperus ashei (mountain cedar)
C;Date: 17-Nov-2000 #sequence_revision 17-Nov-2000 #text_change 17-Nov-2000
C;Accession: JC7366; PC7093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: GB:AJ404653
A;Accession: PC7093
                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cross-references: EMBL:AL132958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;Molecule type: protein ;Residues: 55-63 <YO2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                126 PSNWMIKLKQELIFNSYKTLDGRGANVHIVG-GGCITLQYVSNII 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               274 TCGPGHGMSIGSLGKGNSRSEVSFVHLDGAKFIDTQNGL 312
                                                                                                                                                                                                         80 SGNWNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                237 IDÍFÁSKRFEIEKCTIGTG------273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 protein - mountain cedar
                                                                                                                                                                                                                                                                 66
                                                                                                                                                                                                                                                                                             52 WKNNRIWL-----FTLMGRRPLWIIF 79
                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       91 MYIAGYKTFDG-----RRAEVSYVHVNGAKFIRRVDGI 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31 IDIFASKNEHLQKNTIGTGRRWKNNRIWLQFAKLTGETLMGRRPLWIIFSGNMNIKLKMP 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ocal
                                                                                                                                                                                                                                                 WPNNRQGLADCGIGFGQYALGCKGGQFYFVTDSSDDDAVNPKPGTLRYGVIQEBPLWIVF 125
                                                                                                                                                                                                                                                                                                                                                32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                14.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13; Mismatches
                                                                                                                                                                                                                                                                                                                                                8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                Score 104.5; DB;
Pred. No. 0.0024;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 107.5; DB Pred. No. 0.0012;
                                                                                                                                                                                                                                                                                                                                                                                DB 2; Length 463;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 2;
                                                                                                                                                                                                                                                                                                                                              32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25;
                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29;
                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
```

```
allergen Amb a I.1 precursor - common ragweed c;gecies: Ambrosia artemislifolia (common ragweed) c;Date: 27-Nov-1991 #Bequence revision 03-Apr-1992 #text_change 29-Sep-1999 C;Accession: A39099; A60895; A53240 R.Rafnar, T.; Griffith, I.J.; Kuo, M.; Bond, J.F.; Rogers, B.L.; Klapper, D.G. J. Biol. Chem. 266, 1229-1236, 1991 A;Title: Cloning of Amb a I (antigen B), the major allergen family of short ragweed poll A;Recession: A39099 MUID:91093235; PMID:1702434 A;Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Introns: 65/2; 316/3; 398/3
A;Note: F2G14_230
C;Superfamily: pectate lyase LAT59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C;Date: 18-Aug-2000 #sequence_revision 18-Aug-2000 #text_change 17-Nov-2000 C;Accession: T51456 R;Sato, S.; Nakamura, Y.; Kaneko, T.; Kato, T.; Asamizu, E.; Kotani, H.; Ta)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: EMBL;AL391146
A;Experimental source: cultivar Columbia; BAC clone F2G14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pectate lyase-like protein - Arabidopsis thaliana N;Alternate names: protein F2G14 230 C;Species: Arabidopsis thaliana (mouse-ear cress)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A/Cross-references: GB:X55193; NID:g19161; PIDN:CAA38979.1; PID:g19162
C/Superfamily: pectate lyase LAT59
C;Keywords: carbon-oxygen lyase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Accession: S12209
R;Budelier, K.A.; Smith, A.G.; Gasser, C.S.
Mol. Gen. Genet. 224, 183-192, 1990
A;Title: Regulation of a stylar transmitting tissue-specific gene in wild-type and trans
A;Reference number: S12209; MUID:91117185; PMID:2277637
A;Accession: S12209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A, Map position: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Residues: 1-472 <SAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Reference number: Z25394
A; Accession: T51456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       submitted to the Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: mRNA
A; Residues: 1-404 <BUD>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                 194 KNDMSIRLNQELLINSHKTIDARGANVHVAHGAGITMQFVKNV 236
                                                                                                                                                                                                                                                                                                                                                                                                                                           134 WAKRRKKLTRCVRGFGHRTTGGKRGRTYVVTSNLDEDMVNPKPGTLRHAVIQKEPLWTTF 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          117 QDEPLWIIFKRDMVIQLKQELVMNSYKTIDGRGAS---VHISGGPCI 160
                                                                                                                                                                                                                                                                                                                                                                                              80 SGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNG--AKFIRRV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          34 FASKNFHLQKNTIGTGRR---WKNNRIWLQFAKL-----TGFTLMGRRPLWIIF 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            71 GRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFI 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28 GRRIDIFASKNEHLQKNTIGTGRRWKNNRIW-------LQFAKLTGFTLM 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GKKSPAFSYCAIGFGKNAIG----GKNGRIYVVTDSGNDDPVNPKPGTLRHA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         33,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13.9%; Score 99; DB 2; 28.2%; Pred. No. 0.0094;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence Database, August 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    T.; Kato, T.; Asamizu, E.; Kotani, H.; Tabata, S.; Mew
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 103; DB 2;
Pred. No. 0.0029;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2; Length 472;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2; Length 404;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              w
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4;
```

```
A; Molecule type: protein
A; Molecule type: protein
A; Residues: 256-273;292-303,'W',305-306 <SMI>
A; Residues: 256-273;292-303,'W',305-306 <SMI>
R; Griffith, I.J.; Pollock, J.; Klapper, D.G.; Rogers, B.L.; Nault, A.K.
R; Griffith, I.J.; Pollock, J.; Klapper, D.G.; Rogers, B.L.; Nault, A.K.
Int. Arch. Allergy Appl. Immunol. 96, 296-304, 1991
A; Title: Sequence polymorphism of Amb a I and Amb a II, the major allergens
A; Reference number: A53240; MUID:92234570; PMID:1809687
A; Accession: A53240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Residues: 1-396 <RAF>
A;Cross-references: GB:M63116
A;Cross-references: GB:M63116
R;Smith, J.J.; Olson, J.R.; Klapper, D.G.
MOl. Immunol. 25, 355-365, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: GB:M80558; NID:g166434; PIDN:AAA32665.1; PID:g166435
C;Superfamily: pectate lvase LATE9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: mRNA
A; Residues: 1-396 < GRI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Reference number: A60895; MUID:88288254; PMID:2456454 A;Accession: A60895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: GB:M80560
C;Superfamily: pectate lyase C;Keywords: pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C;Accession: C53240
R;Griffith, I.J.; Pollock, J.; Klapper, D.G.; Rogers, B.L.; Nault, A.K.
Int. Arch. Alleryy Appl. Immunol. 96, 296-304, 1991
A;Title: Sequence polymorphism of Amb a I and Amb a II, the major allergens in Ambrosia A;Reference number: A53240; MUID:92234570; TMID:1809687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F;36/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Superfamily: pectate lyase LAT59
C;Keywords: glycoprotein; pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-397 <GRI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    allergen Amb a I.3 precursor - common ragweed
C;Species: Ambrosia artemisiifolia (common ragweed)
C;Date: 19-May-1994 #sequence_revision 19-May-1994 #text_change 18-Sep-1998
C;Accession: C53240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
RESULT 13
C39099
C39099
allergen Amb a I.3 - common ragweed
C;Species: Ambrosia artemisiifolia (common ragweed)
C;Date: 27-Nov-1991 #sequence_revision 03-Apr-1992 #text_change 29-Sep-1999
C;Accession: C39099
                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                            片
                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: C53240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Title: Monoclonal antibodies to denatured ragweed pollen allergen Amb a I: characteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Superfamily: pectate lyase LAT59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              173 VNPGGLIKSNDGPAA 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  122 ----GIIAAYQNPAS 132
                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVH----VNGAK--FIRRVD----- 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                 61 WENNRQALADCAQGFAKGTYGGKWGDVYTVTSNLDDDVANPKEGTLRFAAAQNRPLWIIF 120
                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RPLWIIFERDMVIRLDKEMVVNSDKTIDGRGAKVEIINAGFTLNGVKNVIIHNINMHDVK 172
                                                                                                                                                                                                                            KNDMVINLNQELVVNSDKTIDGRGVKVEI--INGGLTLMNVKNII
                                                                                                                                                                                                                                                                             SGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13.6%;
29.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 98.5;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 97; DB 2;
Pred. No. 0.013;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.0087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 2; Length 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22; Indels 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 33; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 396;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 in Ambrosia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        w
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω,
```

```
R;Rafnar, T.; Griffith, I.J.; Kuo, M.; Bond, J.F.; Rogers, B.L.; Klapper, D.G. J. Biol. Chem. 266, 1229-1236, 1991
A;Title: Cloning of Amb a I (antigen E), the major allergen family of short ragweed poll A;Reference number: A39099; MUID:91093235; PMID:1702434
A;Recession: C39099
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Residues: 1-397 <RAF>
A;Cross-references: GB:M62961; NID:g166440; PIDN:AAA32668.1; PID:g166441
C;Superfamily: pectate lyase LAT59
C;Keywords: pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R;Rounsley, S.D.; Lin, X.; Ketchum, K.A.; Crosby, M.L.; Brandon, R.C.; Sykes, S.M.; Kaul
submitted to the EMBL Data Library, March 1998
A;Description: Arabidopsis thaliana chromosome II BAC T20F6 genomic sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Lin, X.; Kaul, S.; Rounsley, S.D.; Shea, T.P.; Benito, M.I.; Town, C.D.; Fujii, C.Y.; M.; Koo, H.; Moffat, K.S.; Cronin, L.A.; Shen, M.; VanAken, S.E.; Umayam, L.; Tallon, L. eußs, D.; Nierman, W.C.; White, O.; Eisen, J.A.; Salzberg, S.L.; Fraser, C.M.; Venter, J. Nature 402, 761-768, 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pectate lyase (EC 4.2.2.2) T20F6.14 - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 12-Feb-1999 #sequence_revision 12-Feb-1999 #text_change 02-Feb-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Reference number: Z14206
A; Accession: T00856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Title: Sequence and analysis of chromosome 2 of the plant Arabidopsis thaliana
A;Reference number: A84420; MUID:20083487; PMID:10617197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: EMBL:AC002521; NID:g2947056; PIDN:AAC05350.1; PID:g2947069
A;Experimental source: cultivar Columbia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Molecule type: DNA
A;Residues: 1-455 <ROU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                  C; Keywords: carbon-oxygen lyase
                                                                                                                                                                                                                                                                      A; Note: T20F6.14
                                                                                                                                                                                                                                                                                                  A; Introns: 66/2; 295/3; 376/3
                                                                                                                                                                                                                                                                                                                                                      A; Gene: At 2g02720
                                                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: GB:AE002093; NID:g2947069; PIDN:AAC05350.1; GSPDB:GN00139
                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: DNA
A; Residues: 1-455 < STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Reference number: A84420; MUID:20083487; A;Accession: A84440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Residues:
                                                                                                                                                                                                                                                                                                                      A; Map position: 2
                                                                                                                                                                                                                                                                                                                                                                               C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                         Superfamily: pectate lyase LAT59
                                                                                                         Matches
                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 KNDMVINLNQELVVNSDKTIDGRGVKVEI--INGGLTLMNVKNII 163
166 RPLWIIFARSMIIKLQQELIITNDKTIDGRGAKI-YI-TGGAGLTLQFVRNV 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52 WKNNRIWLQ----FAKLT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGA----KFIRRV 120
                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WENNROALADCAOGFAKGTYGGKWGDVYTVTSNLDDDVANPKEGTLRFAAAONRPLWIIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T00856; A84440
                                                                                                                                   h 13.6%; Score 97; DB 2; Length 455; Similarity 46.2%; Pred. No. 0.015;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13.6%;
                                                                                                            9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 97; DB 2;
Pred. No. 0.013;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----GFTLMGRRPLWIIF 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 397;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34;
                                                                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
••
                                                                                                                    w
--
```

hypothetical protein F14L17.19 [imported] - Arabidopsis thaliana C;Species: Arabidopsis thaliana (mouse-ear cress)

RESULT 15 G86278

C;Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 01-Mar-2002 C;Accession: G86278 R;Theologis, A.; Ekker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso, Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K.; Asuthors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, C. C.A.; Li, J.H.; Lin, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Marziali, Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H. A;Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallon, A;Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis. A;Ccession: G86278 a. Ctation. The content of the plant Arabidopsis. A;Ccession: G86278 Search completed: April 23, 2003, 18:08:13 Job time : 19 secs 皮 Ś 밁 Ś A;Map position: 1 C;Superfamily: pectate lyase LAT59 Query Match 13.4%; Score 95.5; DB 2; Best Local Similarity 28.6%; Pred. No. 0.022; Matches 32; Conservative 9; Mismatches 28; ;Status: preliminary ;Molecule type: DNA ;Mesidues: 1-459 <STO> ;Cross-references: GB:AE005172; NID:g7262684; PIDN:AAF43942.1; GSPDB:GN00141 Genetics: 170 GPLWIIFARSMIIKLQQELMITSDKTIDGRGARV-YIMEGAGLTLQFVNNVI 220 115 RNWANNR-----KKLADCVLGFGRRTTGGKDGPIYVVKDASDNDLINPKPGTLRHAVTRD 169 74 -PLWIIFSGNMNIKLKMEMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124 50 RRWKNNRIWLQFAKLTGFTL-MGRR------Length 459; Indels 43; Gaps ---- 73 4;

, P					
					1
•		•			d
			•		
	,			·	

```
GenCore version 5.1.4 p5_4578

Copyright (c) 1993 - 2003 Compugen Ltd.

OM protein - protein search, using sw model

Run on: April 23, 2003, 18:04:50 ; Search time 13 Seconds (without alignments)

427.525 Million cell updates/sec

Perfect score: 711
Sequence: US-09-142-524D-3
Sequence: 1 MKVTVAFNQFGFNRRVFIKR......KFIRRVDGIIAAYQNPASWK 134

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 100%
Maximum Match 100%
Misting first 45 summaries

Database: SwissProt_40:*
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

**	
⋍	
Ħ	
∍	
₽.	
4	
ñ	
н	

ų.) (2) (2)) L	30	29	28	27	200) () () ()	A C	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	80	7	o	U	4	ω	N	, р	NO.	Result
			65					· 6	٠,	7.		8	9	70.5	71	80.5	-	82.5	α	89	91	92	93	93	97	98.5	103	142	143	148.5	տ	8	score	
9.1	9.1	9.1	9.1	9.3	9.3	9.	9.4	•	9.5	•	•	9.6	•	9.9	10.0	11.3	11.5	11.6	•	12.5	•	12.9	13.1		13.6	13.9	٠	20.0		20.9	21.1	٥.	Macch	
1010	781	726	576	646	382	375	110	757	1070	985	551	234	338	622	2710	605	234	449	434	392	398	397	398	397	397	396	404	375	346	514	367	374	Length	
М	1	۲	Ь					•	•	-	1	_	۳	۳	ب	ب	_	μ	μ	μ	بر	_	سو	Н	_	-	μ	ب	Н	Ь	Н	Н	DB.	
CLPP_CHLEU	TL22_CHICK	YB1D_SCHPO	DPEP_SOLTU	NODQ RHIS3	PHYT_BACSU	Y4ED_RHISN	Y12K_SMSV4	FIXI_RHIME	YHV4_YEAST	AGLU_ASPOR	CHIT NAVAC	A29B DROSI			TOXA CLODI				PEL LILLO	MP14 AMBAR	PE56 LYCES	MPA2 AMBAR	MP12 AMBAR	PEL TOBAC	MP13 AMBAR	MP11 AMBAR	9612 LYCES	MPA1 CHAOB	MPA1 CUPAR	MPA2_CRYJA	PAI	SBP CRYJA	ID	
P42379 chlamydomon			8 1	יייי מחלת איני	4 bacillus s	P55427 rhizobium s			P38850 saccharomyc				P47085 Baccharomyo			P52070 methylchact	_		40973 lilium le	ambrosia	15721 lyconersic	2 ambrosia	ambrosia	nicotiana	l ambrosia.	27759 ambrosia		m cancellation of the contract	Cupressis	4321	81294 inniperus	P18632 cryptomeria	script	

00000004444444444400000000000000000000	
6 63 64 63 64 63 65 65 65 65 65 65 65 65 65 65 65 65 65	
532 633 196 309 326 327 477 722 725 725 725 725	
PUR2 ARATH NODO_RHISB YMO7_YEAST Y40Q_RHISN SCRR_PEDPE NU2M_RABIT GLGA_SYNY3 GPV1_ORENI GUNG_CLOCE COMP_RAT GUNG_CLOCE COMP_RAT WDR6_HUMAN FLGG_AGRT5	
P52420 arabidopsis 007309 r nodq bifu Q04487 saccharomyc P55602 rhizobium s P43472 pediococcus O79428 oryctolagus P74521 synechocyst P70091 oreochromis P37700 clostridium P35444 rattus norv Q9nnw5 homo sapien Q44338 agrobacteri	

ALIGNMENTS

```
MRSSULT MARSULT MARSUL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VARIANT
VARIANT
VARIANT
VARIANT
VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; D26544; BAA05542.1; -.

EMBL; D26545; BAA0543.1; -.

EMBL; D34639; BAA07020.1; -.

PIR; A44773; A44773.

GlycoSuiteDB; P18632; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                           P81294; Q9ZNU7;
16-OCT-2001 (Rel. 40,
16-OCT-2001 (Rel. 40,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MPA1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 modified
                                                                                                                                                                                                                                                                                                                            15-JUN-2002 (Rel. 41, Last annotation update)
Major pollen allergen Jun a 1 precursor.
Juniperus ashei (Ozark white cedar).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JUNAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRINTS; PR00807;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VARIANT
MEDLINE=99414162; PubMed=10482835; Midoro-Horiuti T., Goldblum R.M.,
                                        TISSUE=Pollen;
                                                              SEQUENCE OF 22-50.
                                                                                                                         "Molecular cloning c
allergen, Jun a 1.";
                                                                                                                                                                Brooks E.G.,
                                                                                                                                                                                   MEDLINE=99414163; PubMed=10482836;
Midoro-Horiuti T.M., Goldblum R.M.,
                                                                                                                                                                                                                              TISSUE≃Pollen;
                                                                                                                                                                                                                                             SEQUENCE FROM N.A., AND SEQUENCE
117-124; 134-140; 160-164; 256-20
                                                                                                                                                                                                                                                                                                         NCBI_TaxID=13101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73 RPLWIIFSGNMNIKLKWPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B DIFFERS I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SWISS-PROT entry is copyright. It is produced through a collable of the Swiss Institute of Bioinformatics and the EMBL outst. European Bioinformatics Institute. There are no restrictions European Bioinformatics as long as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JUNAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DIFFERS IN SIX POSITIONS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PF00544;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             non-profit institutions as long as and this statement is not removed. U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IPR002022; Amb_allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Glycoprotein; Multigene family; Signal.
                                                                                                    clin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      374 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22
158
191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pec_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ec_lyase; 1.
AMBALLERGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  293
354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                374
158
191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12
143
202
221
358
                                                                                                                                             of mountain cedar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26.4%;
71.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₹
:
                                                                                                      104:613-617(1999)
                                                                                                                                                                                                                                                 QUENCE OF
256-263 A
                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-LINKED (GLCNAC...) (
N-LINKED (GLCNAC...) (
/FTId=CAR 000135.
N-LINKED (GLCNAC...) (
N-LINKED (GLCNAC...) (
/FTId=CAR 000136.
L -> F (IN CRY J 1-B).
H -> Y (IN CRY J 1-B).
S -> T (IN CRY J 1-B).
L -> S (IN CRY J 1-B).
C -> H (IN CRY J 1-B).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 188; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 2.74
4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      74AB25950248F56F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASIC PROTEIN.
Kurosky
                                                                                                                                                                                                                                                 F 31-38; 42-50;
AND 322-325.
                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                   Kurosky A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   367
                                                                                                                                             (Juniperus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
.7e-12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Usage
  Goetz D.
                                                                                                                                                                                     Wood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CRC64;
                                                                                                                                               ashei) pollen major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                     58-80; 88-94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (POTENTIAL) (COMPLEX).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (POTENTIAL).
                                                                                                                                                                                     T.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL outstation
                                                                                                                                                                                                                                                                                                                                   Juniperus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
MEASULT 3

MEASCRYIA
ID. MEASC
DO 11-NOV
DT 01-NOV
DT 16-OCT
DE POSSILD
DE (Major
OS CTYPTO
OC ENKARY
OC SPERMA
OX NCBI T
RN [1] T
RN ISIUEN
RC TISSUE
RT JAPANE
RT JAPANE
RL GEBS I
RN (2)
RN (2)
RN SEQUEN
RC TISSUE
RT JAPANE
RT JAPANE
RT JAPANE
RT JAPANE
RT GEBS I
RN (2)
RN SEQUEN
RC TISSUE
RT JAPANE
RT JAPANE
RT JAPANE
RT JAPANE
RT GEBS I
RN (2)
RN (2)
RN SEQUEN
RC TISSUELLIN
RX MEDLIN
RX SEQUEN
RY SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Brooks E.G.;
"Isolation and characterization of the mountain cedar (Juniperus ashel) pollen major allergen, Jun a 1.";
J. Allergy Clin. Immunol. 104:608-612 (1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Allergen;
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; AF106663; AAD03609.1; -.
EMBL; AF106662; AAD03608.1; -.
InterPro; IPR002022; Amb_allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entities requires a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -!- SIMILARITY: BELONGS TO THE POLYSACC AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                Japanese
Biochem.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
16-CCT-2001 (Rel. 40, Last annotation update)
Possible polygalacturonase precursor (EC 3.
(Major pollen allergen Cry j 2) (Cry j II).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- DISEASE: THIS PROTEIN CAUSES SEVERAL SEASONAL ALLERGIS
MEDLINE=90342988; PubMed=2382797; Sakaguchi M., Inouye S., Taniai M., "Identification of the second major
                                                                                                                                                                                                                                                                                                   "Molecular cloning of the second Japanese cedar pollen."; FEBS Lett. 353:124-128(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cryptomeria japonica (Japanese cedar)
Eukaryota; Viridiplantae; Streptophyt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P43212;
01-NOV-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Spermatophyta; Coniferopsida;
                                                                                                                                                                                                                                                                                                                                                                                           Namba M.,
                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=95010777;
                                                                                                                                                                                                                                                                                                                                                                                                                                           rissum=Pollen,
                                                                     SEQUENCE OF 55-64.
                                                                                                                                                                                                           MEDLINE=94271186;
                                                                                                                                                                                     Komiyama N., Sone
                                                                                                                                                                                                                                                        EQUENCE
                                                                                                                                                                cDNA cloning and expression of C
                                                                                                                                                                                                                                   'ISSUE=Pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IN NORTH AMERICA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TaxID=3369;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CRYJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KALWIIFSQNMNIKLKMPLYVAGHKTIDGRGADVHLGNGGPCLFMRKVSHVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                  cedar pol
Biophys.
                                                                                                                                                                                                                                                                                                                                                                        Kurimoto M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FROM N.A.,
                                                                                                                                                                                                                                                          FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148
178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA;
                                                                                                                                        pollen."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.
                                                                                                                                                                                                                                                                                                                                                                                                                        PubMed=7926035;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     148
178
                                                                                                                                                                                     T., Shimizu
                                                                                                                                                                                                             PubMed=8002972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      catement is not removed. Usage by and for commercial
license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     39824 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AND PARTIAL SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                Torigoe
                                                                                                                     Commun.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Streptophyta; Embryophyta; Tracheophyta; ida; Coniferales; Cupressaceae; Cryptomeria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 150; DB 1;
Pred. No. 2.4e-08;
9; Mismatches 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAJOR POLLEN ALLERGEN JUN A 1.
N-LINKED (GLCNAC. . .) (POTENT
N-LINKED (GLCNAC. . .) (POTENT
j. FC9B81E675662E49 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                              ۲.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                       201:1021-1028(1994)
                                                                                                                                                                Cry
                                                                                                                                                                                                                                                                                                                                                     major allergen,
                                                                                                                                                                                                                                                                                                                                                                                           Hino K., Taniguchi Y.,
                                                                                                                                                                                          Morikubo
  Ando S., allergen
                                                                                                                                                                u.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       j II).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    514 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (EC 3.2.1.15)
                                                                                                                                                                  ΙΙ
                                                                                                                                                                  the second
    Usui M.,
of Japane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 367;
                                                                                                                                                                                                                                                                                                                                                        cry j II,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (PG) (Pectinase)
                                                                                                                                                                    major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL)
                               Matuhasi
                                                                                                                                                                                                                                                                                                                                                                                                     Fukuda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RHINITIS
                                                                                                                                                                    allergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                       ဓ္ဌ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

Japanese cedar

```
RA RA
                                                                                                                                                                           MPA1
                                                                                                                                                                                      RESULT 4
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                 Matches
           SEQUENCE FROM N.A.
MEDLINE=20571526; PubMed=11122214;
Aceituno E., Del Pozo V., Minguez
                                                              Cupressus arizonica.
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cupressus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Aceituno E., Del Pozo V., Minguez A., Arric
Cardaba B., Gallardo S., Rojo M., Palomino
                                                                                                      16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Major pollen allergen Cup a 1.
                                                                                                                                                                           CUPAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACT SITE
                                                                                                                                         Q9SCG9;
16-OCT-2001
                                                                                                                                                                 MPA1
                                                           NCBI_TaxID=49011;
                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                               CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                          CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                   CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                               CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00295; Glyco hydro 28; 1.
PROSITE; PS00502; POLYGALACTURONASE; 1.
Hydrolase; Glycosidase; Cell wall; Signal; Zymogen; Fruit ripening;
Amyloplast; Glycoprotein; Allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; D37765; BAA07021.1; -.
EMBL; D29772; BAA06172.1; -.
HSSP; P26509; 1BHE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  errittes requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for contentions are the content in the statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                           CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                               CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires a license
                                                                                                                                                                                                                        273
                                                                                                                                                                                                                                                                    236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                [nterPro;
                                                                                                                                                                                                                                       91 MYIAGYKTFDG-----RRAEVSYVHVNGAKFIRRVDGI 123
                                                                                                                                                                                                                                                                                  31 IDIFASKNEHLOKNTIGTGRRWKNNRIWLQFAKLTGFTLMGRRPLWIIFSGNNNIKLKMP 90
                                                                                                                                                                                                                  ICGPGHGISIGSLGRENSRAEVSYVHVNGAKFIDTQNGL 311
                                                                                                                                                                                                                                                                IDIFASKNEHLQKNTIGTG--
                                                                                                                                                                CUPAR
                                                                                                                                                                                                                                                                                                               41;
                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IPR000743; GH28.
                                                                                                                                                                                                                                                                                                                                                          514 AA;
                                                                                                                                                                                                                                                                                                                                                                                 12
34
37
88
98
451
454
                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                     20.9%;
                                                                                                                                                                                                                                                                                                                                                         56645 MW;
                                                                                                                                                                                                                                                                                                                                                                 DI -> VV (IN REF. 2).
Q -> K (ÎN REF. 2).
K -> N (IN REF. 2).
N -> S (IN REF. 2).
N -> S (IN REF. 2).
G -> R (IN REF. 2).
M -> I (IN REF. 2).
M -> I (IN REF. 2).
                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-LINKED
                                                                                                                                                                                                                                                                                                                     Score 148.5; DB 1
Pred. No. 4.9e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            V -> L (IN REF.
                                                                 Coniferales; Cupressaceae; Cupressus.
                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROBABLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POSSIBLE
                                                                                                                                                                                                                                                                                                                                                      624611C3FA8D6302 CRC64;
                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                            346 AA
           Arrieta I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POLYGALACTURONASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (GLCNAC. . .)
                                                                                                                                                                                                                                                              -----DDCVAIGTGSSNIVIEDL 272
   .
.
                                                                                                                                                                                                                                                                                                                                DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         22
                                                                                                                                                                                                                                                                                                           21;
   Lahoz
                                                                                                                                                                                                                                                                                                                                                                                                                                                2)
          Cortegano
                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                Length 514;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (POTENTIAL):
                                                                                                                                                                                                                                                                                                           29;
                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                         2
```

```
MPA1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PART OF THE PROPERTY OF THE PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                 Allergen;
                                                                         Pfam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                               "Purification, characterization and molecular cloning of Cha o 1, a major allergen of Chamaecyparis obtusa (Japanese cypress) pollen.", Mol. Immunol. 33:451-460(1996).
-i- SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.
AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Major pollen allergen Cha o 1 precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MPA1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAOB
                                                                                                                                      InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Suzuki M., Komiyama N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=96265194; PubMed=8676896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Chamaecyparis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chamaecyparis obtusa (Japanese cypress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q96385;
16-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ohta N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE=Pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=13415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Allergen; Glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; AJ243570; CAB62551.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Clin. Exp. Allergy 30:1750-1758(2000).
-!- SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.
AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cup a 1.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Molecular cloning of major allergen from Cupressus arizonica pollen:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR002022; Amb_allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66 KALWIIFSQNMNIKLQMPLYVAGYKTIDGRGAVVHLGNGGPCLFMRKASHVI 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       73 RPIWIIFSGNMNIKIKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAOB
                                                                                                                                                           D45404; BAA08246.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                       Glycoprotein; Signal.
                                                                                                      IPR002022; Amb_allergen
0544; pec_lyase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       346 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    157
272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 157
272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AND PARTIAL SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37589 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  53.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Itoh M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED
N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 143;
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F1281DCDA1D5DFD0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Itoh H., Sone T., Kuno K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  375 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC. . .) (POTENTIAL). (GLCNAC. . .) (POTENTIAL). (GLCNAC. . .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 346;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Takagi I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

SIGNAL

MAJOR POLLEN ALLERGEN CHA O

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9612_LYCES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             wild-type and transgenic tomato and tobacco.";

MOL Gen. Genet. 224:183-192 (1990).

MOL Gen. Genet. 224:183-192 (1990).

TISUB OF THE STYLE AND/OR IN THE DEVELOPMENT OF THE TRANSMITTING

TISSUB OF THE STYLE AND/OR IN THE EVENTS RELATED TO POLLINATION
SUCH AS SOME ASPECT IN THE FACILITATION OF COMPATIBLE POLLEN TUBE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                        the European Bioinformatics Institute. There are no rest
use by non-profit institutions as los content
modified and this statement is not removed. Usage by an
entitles requires a license agreement (See http://www.isb-
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                             + +
                                                                                                                                                                                                                                                                                                                                                                                                                                      ++
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Budelier K.A., Smith A.G., Gasser C.S., "Regulation of a stylar transmitting ti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=cv. VF36; TISSUE=Pistil;
MEDLINE=91117185; PubMed=2277637;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Viridiplantae; Streptophyta; Embryophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core ev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Style development-specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAR-1992
15-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9612_LYCES
                                           CARBOHYD
SEQUENCE
                                                                                                       Signal.
SIGNAL
                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Asteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-MAR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P24396;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=4081;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lycopersicon esculentum (Tomato).
                                                                                                                                                                                                                                                                                                  between
                                                                        CARBOHYD
                                                                                         CHAIN
                                                                                                                                   PRINTS; PR00807;
                                                                                                                                                 InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
                                                                                                                                                                               PIR; S12209; S12209.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73
                                                                                                                                                                                                                                                                                                                                                          SUBCELLULAR LOCATION: Secreted.
TISSUE SPECIFICITY: PREDOMINANTLY FOUND IN THE PISTIL WHERE IT FOUND IN THE OFFER FIVE LAYERS OF THE STRANDS OF TRANSMITTING TOUND IN THE OUTER FIVE LAYERS OF THE STYLE. FOUND AT MUCH TISSUE WITHIN THE UPPER TWO-THIRDS OF THE STYLE. FOUND AT MUCH LOWER LEVELS IN THE ANTHERS AND VEGETATIVE ORGANS.

LOWER LEVELS IN THE ANTHERS AND VEGETATIVE ORGANS.

DEVELOPMENTAL STAGE: MAXIMUM LEVELS ARE FOUND DUTRING ANTHESIS.
SIMILARITY: 54% IDENTICAL TO TOMATO PROTEINS P59 (AC P15722)
                                                                                                                                                                                                                                                                                                                                                 AND P56 (AC P15721).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RSLWIIFSKNINIKLNMPLYIAGNKTIDGRGAEVHIGNGGPCLFMRTVSHVI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                    SWISS-PROT entry is copyright. It is produced through a collabora
sen the Swiss Institute of Bioinformatics and the EMBL outstati
European Bioinformatics Institute. There are no restrictions on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30;
                                                                                                                                                                                            X55193; CAA38979.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20.0%;
nilarity 57.7%;
Conservative
                                           1
21
37
191
404 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              euasterids I; Solanales; Solanaceae; Solanum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21, Created)
21, Last sequence update)
38, Last annotation updat
                                                                                                                                     AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110
148
178
293
352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              40258
                                           44298 MW;
14.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ME.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   annotation update)
protein 9612 precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED (GLCNAC. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 142; DB 1;
Pred. No. 1.7e-07;
5; Mismatches 17
                                           STYLE DEVELOPMENT-SPECIFIC PROTEIN 9612.

N-LINKED (GLCCAC. . .) (POTENTIAL).

N-LINKED (GLCCAC. . .) (POTENTIAL).

B26ED69B128D8675 CRC64;
Score 103; DB 1;
Pred. No. 0.0021;
                                                                                                       POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC. . .)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tissue-specific gene
                                                                                                                                                                                                                                      moved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 375;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CRC64;
              Length 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (POTENTIAL).
(POTENTIAL).
(POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              eudicots;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tracheophyta;
                                                                                                                                                                                                                                                                                                      EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             in
                                                                                                                                                                                                                                                                                                                   a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

```
₽,
                                                                                                       PFFFFRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
Query Match
Best Local S
Matches 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MP11 AMBAR
P27759;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ragweed purposed in the second second
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
16-OCT-2001 (Rel. 40, Last annotation update)
19 pollen allergen Amb a 1.1 precursor (Antigen E) (Antigen Amb a I).
19 Ambrosia artemisifolia (Short ragweed).
19 Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
19 Eukaryota; Wagnoliophyta; endicotyledons; core endicots;
19 Expermatophyta; Magnoliophyta; endicotyledons; core endicots;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMBAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaborate between the Swiss Institute of Bioinformatics and the EMBL outstatisthe European Bioinformatics Institute. There are no restrictions on use by non-profit institutions as long as its content is in no modified and this statement is not removed. Usage by and for comment is the content is the modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Griffith I.J., Pollock J., Klapper D.G., Rogers B.L. "Sequence polymorphism of Amb a I and Amb a II, the in Ambrosia artemisiifolia (short ragweed)."; Int. Arch. Allergy Appl. Immunol. 96:296-304(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rafnar T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=91093235; PubMed=1702434;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A., AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Heliantheae; Ambrosia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Asteridae; euasterids II; Asterales; Asteraceae; Asteroideae;
                                                                                                                                                                                                                                                                                                                      EMBL; M63116; -; NOT ANNOTATED CDS.
EMBL; M80558; AAA32655.1; -.
PIR; A39099; A39099.
PIR; A53240; A53240.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Int.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=92234570;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TISSUE=Pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 117
                                                                                                          SEQUENCE
                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'Cloning of Amb
                                                                                                                                   VARIANT
                                                                                                                                                                                                                                        Pfam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EQUENCE FROM N.A., AND VARIANTS
                                                                                                                                                                                                               intigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                71
                                                                                                                                                                                                                                                                                                nterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PTM: The N-terminus is blocked.
DISEASE: ONE OF THE MAJOR ALLERGENS OF THE SIMILARITY: BELONGS TO THE POLYSACCHARIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QDEPLWIFKRDMVIQLKQELVMNSYKTIDGRGAS---VHISGGPCI 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFI 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GRRIDIFASKNFHLOKVTIGTGRRWKNNRIW-------LOFAKLTGFTLM 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TaxID=4212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GKKSPAFSYCAIGFGKNAIG----GKNGRIYVVTDSGNDDPVNPKPGTLRHA-----VI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Arch. Allergy Appl. Immunol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SSUE SPECIFICITY: POLLEN AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pollen."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   requires a license agreement
                                                                                                                                                                                     Allergen; Signal;
                                                                                                                                                                                                                                                                    IPR002022; Amb_allergen.
0544; pec_lyase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Griffith
                                                                                                             396 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                         92
92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          266:1229-1236(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a I (antigen E), the major allergen family of short
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=1809687;
                                                                                                                                                                  396
                                                                                                             92
42709
                           13.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PARTIAL SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kuo M.-C.,
                                                                                                             MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13;
                                                                                                                                                                                                                    Multigene family; Polymorphism
                                 Score 98.5;
Pred. No. 0.
                                                                                                                                      ₩
'
                              Pred. No.
                                                                                                                                                            POLLEN ALLERGEN AMB A 1.1.
                                                                                                                                                                                        POTENTIAL
                                                                                                             0CE7DDECB2B8841D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FLOWERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bond J.F., Rogers B.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OF THE RAGWEED POLLEN.
HARIDE LYASE FAMILY 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A
                                                       DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LYASE FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the major
                                                                                                               CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                     Length 396;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nault A.K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.
```

Similarity

Conservative

12;

Mismatches

. 006;

15;

ω

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 8
MP13_AMB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                            Matches
                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                     EMBL; M80560; AAA32669.1; ALT_SEQ. PIR; C39099; C39099. InterPro; IPR002022; Amb_allergen. Pfam; PF00544; Dec_Lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       P27761;
01-AUG-1992
01-AUG-1992
                                                                                           VARIANT
                                                                                                                   SIGNAL
                                                                                                                             Antigen;
                                                                                                                                                                                                    EMBL; M62961; AAA32668.1;
                                                                                                                                                                                                                            or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids II; Asterales; Asteraceae; Asteroideae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-AUG-1992 (Rel. 23, Created)
01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Pollen allergen Amb a 1.3 precursor (Antigen E) (Antigen Amb a I).
Ambrosia artemisiifolia (Short ragweed).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=Pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A., AND VARIANTS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ragweed pollen."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Cloning of Amb a I (antigen E), the major allergen family of short
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Klapper D.G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=91093235; PubMed=1702434;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMBAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE=Pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MP13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VCBI_TaxID=4212;
   52 WKNNRIWLQ----FAKLT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           113
                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Biol.
                                                                                                                                                                                                                                                                       s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RPLWIIFERDMVIRLDKEMVVNSDKTIDGRGAKVEIINAGFTLNGVKNVIIHNINMHDVK 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VNPGGLIKSNDGPAA 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----GIIAAYQNPAS 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AMBAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVH----VNGAK--FIRRVD----
                               31;
                                         Similarity
                                                                                              Allergen; Signal; Multigene family; Polymorphism.

1 25
POTENTIAL.
26 397
POLLEN ALLERGEN AMB A 1.3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chem. 266:1229-1236(1991).
                                                                        26
48
397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Griffith I.J., Kuo M.-C., Bond J.F., Rogers B.L.,
                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ambrosia.
                                                                             AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                            42928 MW;
                                        13.6%;
                        Score 97; DB:
Pred. No. 0.008
7; Mismatches
                                                                                         -
-
                                                                         C8DB41257590DD0A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          397 AA.
                                      0.0086;
                                                DB 1; Length 397
                        33; Indels
--GFTLMGRRPLWIIF 79
                        34;
                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                      ű
```

```
뭉
                                S
                                                                                                               ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOBAC
PEL TOB
P40972;
                                                                                                                           CONFLICT
                                                                                                               SEQUENCE
                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                                                                                                                                                           EMBL; X67158; CAA47630.1; -. EMBL; X67159; CAA47631.1; -. EMBL; X61102; CAA43414.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                 the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for commodified and this statement is not removed. Usage by and for commodified and this statement is not removed.
                                                                                                                                                      CONFLICT
                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                  SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  microsporogenesis.";
Plant Mol. Biol. 20:493-502(1992).
-!- CATALYTIC ACTIVITY: Bliminative cleavage of pectate to give
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nicotiana tabacum (Common tobacco).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I; Solanales; Solanaceae; Nicotiana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-FEB-1995 (Rel. 31, Created)
01-FEB-1995 (Rel. 31, Last sequence update)
15-DEC-1998 (Rel. 37, Last annotation update)
Pectate lyase precursor (EC 4.2.2.2).
105 YGVIQKEPLWIIFGKNMKIKLSRELIVTSNKTIDGRGFN---VHIQNGA 150
                                                                                                                                                                 CONFLICT
                                                                                                                                                                                CONFLICT
                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                       ACT_SITE
                                                                                                                                                                                                                                                                           PRINTS;
                                                                                                                                                                                                                                                                                     Pfam; PF00544; pec
                                                                                                                                                                                                                                                                                                                PIR; S26211; S26211.
                                                                                                                                                                                                                                                                                                                                                                               or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- DEVELOPMENTAL STAĞE: MAXIMALLY EXPRESSED LATE IN POLLEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pectate lyase which is specifically expressed during
                                                                                                                                                                                                                                                             Lyase, Signal.
                                                                                                                                                                                                                                                                                                                                                                                                entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rogers H.J., Harvey A., Lonsdale D.M.; "Isolation and characterization of a tobacco gene with homology to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=cv. Samsun; TISSUE=Pollen; MEDLINE=93043039; PubMed=1421152;
                                                                                                                                                                                                                                                                                               interPro; IPR002022; Amb_allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                      Local
                                 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121 KNDMVININQELVVNSDKTIDGRGVKVEI--INGGLTLMNVKNII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                         FTLMGRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHV-NGA 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oligosaccharides with 4-deoxy-alpha-D-gluc-4-enuronosyl groups
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOBAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEVELOPMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                their non-reducing ends
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WENNRQALADCAQGFAKGTYGGKWGDVYTVTSNLDDDVANPKEGTLRFAAAQNRPLWIIF
                                                                      Similarity
                                                                                                                                                                                                                                                                          PR00807;
                                                                                                                                                                                                                                                                                                                                                                                          requires a license agreement
                                                                                                           397 AA;
                                                                                                                           1
26
272
134
127
127
127
120
120
249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                        AMBALLERGEN.
                                                                                                                                       25
397
272
272
134
136
156
190
200
                                                                                                                                                                                                                                                                                        lyase;
                                                                                                            44351 MW;
                                                                     13.1%;
                                                                                                                    N-LINKED (GLCNAC...) (
N-LINKED (GLCNAC...) (
S -> C (IN MRNA).
GS -> SG (IN MRNA).
S -> D (IN MRNA).
H -> R (IN MRNA).
H -> N (IN MRNA).
                                                     Score 93; DB Pred. No. 0.02 7; Mismatches
                                                                                                                                                                                                                POTENTIAL.
                                                                                                                                                                                                                              PECTATE LYASE.
                                                                                                         EF0A82CE5DA7643F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              397
                                                                     0.022
                                                                                                                                                                                                                                                                                                                                                                                        (See http://www.isb-sib.ch/announce/
                                                                                 DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                      17;
                                                                             Length 397;
                                                     Indels
                                                                                                                                                                                     (POTENTIAL).
                                                    4.
                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                  no
no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          at
                                                    ار
```

```
RESULT 10
MP12_AMBAR
                                                                                    Ś
8
                        á
                                                          밁
                                                                                                                       Matches
                                                                                                                                    Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P27760;
01-AUG-1992
01-AUG-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE=Pollen;

MEDLINE=92234570; PubMed=1809687;

MEDLINE=92234570; PubMed=1809687;

Griffith I.J., Pollock J., Klapper D.G., Rogers B.L.

"Sequence polymorphism of Amb a I and Amb a II, the
"Sequence polymorphism of Amb a I and Amb a II, the
in Ambrosia artemisiifolia (short ragweed).";
in Ambrosia artemisiifolia (short ragweed).";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            U1-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Pollen allergen Amb a 1.2 precursor (Antigen E)
Ambrosia artemisiifolia (Short ragweed)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MP12
                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rafnar T.,
Klapper D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rafnar T., Griffith I.J., Kuo M.-C., Bond J.F., Rogers B.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Heliantheae; Ambrosia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Asteridae; euasterids II; Asterales; Asteraceae; Asteroideae;
                                                                                                                                                                                                                                                                                                                         EMBL; M62981; AAA32666.1; -. EMBL; M80559; AAA32667.1; -. PIR; B39099; B39099.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- PTM: The N-terminus is blocked.
-!- DISEASE: ONE OF THE MAJOR ALLERGENS OF THE RAGWEED POLLEN.
-!- SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ragweed pollen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Cloning of Amb a I (antigen E), the major allergen family of short
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI TaxID=4212;
                                                                                                                                                                                                                                                                                                                                                                                     or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                       entities requires a license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A., AND VARIANTS
                                                                                                                                                                                                                                  CHAIN
                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                   VARIANT
                                                                                                                                                                                                                VARIANT
                                                                                                                                                                                                                                                            intigen;
                                                                                                                                                                                                                                                                             InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
122 KRNMVIHLNQELVVNSDKTIDGRGVKVNI--VNAGLTLMNVKNII 164
                             80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Biol.
                                                          62
                                                                                         52 WKNNRIWLQ----FAKLT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SUBUNIT: MONOMER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE SPECIFICITY: POLLEN AND FLOWERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AMBAR
                             SGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII
                                                          WANNRQALADCAQGFAKGTYGGKHGDVYTVTSDKDDDVANPKEGTLRFAAAQNRPLWIIF 121
                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chem. 266:1229-1236(1991).
                                                                                                                                                                                                                                                              Allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (Rel.
                                                                                                                                                                                   398 AA;
                                                                                                                                                                                                                26
345
                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                398
345
                                                                                                                                                                                                                                              Signal; Multigene family; Polymorphism.
25 POTENTIAL.
                                                                                                                                                                                   43664 MW;
                                                                                                                                    13.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                       5
                                                                                                                                    Score 93;
Pred. No.
                                                                                                                                                                                                   L -> I.
                                                                                                                                                                                                               POLLEN ALLERGEN
R -> K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                     020DC662D9B7416C CRC64
                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        398 AA.
                                                                                                                                                                                                                                                                                                                                                                                                     (See http://www.isb-sib.ch/announce,
                                                                                                                                     0.022;
                                                                                           -----GFTLMGRRPLWIIF 79
                                                                                                                                                  DB 1; Length 398
                                                                                                                          34;
                                                                                                                                                                                                                                  AMB A 1.2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Antigen Amb a
                                                                                                                        Indels
                              124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          major allergens
                                                                                                                        34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        :
:
                                                                                                                          Gaps
                                                                                                                          ω
--
```

```
RESULT 11
MPA2_AMBAR
                                                                                밁
                                                                                                                                 Ś
RESULT 12
                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MPA2 AME
P27762;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-AUG-1992 (Rel. 23, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Pollen allergen Amb a 2 precursor (Antigen K)
Ambrosia artemisiifolia (Short ragweed)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-AUG-1992 (Rel. 23,
01-AUG-1992 (Rel. 23,
16-OCT-2001 (Rel. 40,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation between the Swiss Institute of Bioinformatics and the EMBL outstation. The European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Griffith I.J., Pollock J., Klapper D.G., Rogers B.L. "Sequence polymorphism of Amb a I and Amb a II, the in Ambrosia artemisiifolia (short ragweed)."; Int. Arch. Allergy Appl. Immunol. 96:296-304(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rogers B.L., Morgenstern J.P., Griffith I.J., Yu X.-B., Counsell C.M., Brauer A.W., King T.P., Garman R.D., Kuo M.-C.C.; "Complete sequence of the allergen Amb alpha II. Recombinant expression and reactivity with T cells from ragweed allergic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; euasterids II; Asterales; Asteraceae; Asteroideae;
                                                                                                                                                                                                                                                                                                                           CHAIN
VARIANT
VARIANT
VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=92013060; PubMed=1717566;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE=Pollen,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            patients.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FISSUE=Flower;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; M80561; AAA32671.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=92234570; PubMed=1809687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A., AND VARIANTS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CBI_TaxID=4212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          leliantheae; Ambrosia.
                                                                                                                                                                                                                                                                                                                                                                                                                                        SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR002022; Amb_allergen Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR; A46469; A46469.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Intigen;
                                                                                114
                                                                                                                                   73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Immunol. 147:2547-2552(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE SPECIFICITY: POLLEN AND FLOWERS.

PYM: The N-terminus is blocked.

DISEASE: ONE OF THE MAJOR ALLERGENS OF THE RAGWEED POLLEN.
SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.

AMB A 1/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AMBAR
                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Allergen; Signal; Polymorphism.
                                                                                                                                                                                                                                                                                                 26
70
138
321
397 AA;
                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                 25
397
70
138
321
                                                                                                                                                                                                                    12.9%;
                                                                                                                                                                                                                                                                                                          44082 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                             7;
                                                                                                                                                                                                                       Score 92; DB 1;
Pred. No. 0.028;
                                                                                                                                                                                                                                                                                                                           POLLEN ALLERGEN AMB A 2.

N -> D (DETECTED ONLY IN FLOWER K -> T (DETECTED ONLY IN FLOWER K -> R (DETECTED ONLY IN FLOWER K ->
                                                                                                                                                                                                                    Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                       C78617E4C9A3D1DD CRC64;
                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Antigen Amb a II).
                                                                                                                                                                                             21; Indels
                                                                                                                                                                                                                                                Length 397;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ., Nault A.K.;
major allerge
                                                                                           163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          allergens
                                                                                                                                                                                                2
                                                                                                                                                                                                Gaps
                                                                                                                                                                                                   1,
```

PE56_LYCES
ID PE56_LYCES
AC P157Z1;

STANDARD;

PRT;

398

```
MP14
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                         Query Match
01-DEC-1992 (Rel. 24, Created)
01-DEC-1992 (Rel. 24, Last sequence update)
16-OCT-2001 (Rel. 44, Last annotation update)
Pollen allergen Amb a 1.4 precursor (Antigen E) (Antigen Amb a I).
Ambrosia artemisiifolia (Short ragweed).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
                                                                                                                           MP14 AME
P28744;
                                                                                                                                                             AMBAR
                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                             PRINTS; PRO0807; ATDRILLE SIGNAL.

Lyase; Multigene family; Signal.

27 OR 22 (POTENTIAL).

SIGNAL 78 398 PROBABLE PECTATE LYASE P56.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; X15500; CAA33524.1; --
PIR; 508383; S08383.
InterPro; IPR002022; Amb_allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
STRAIN-CV. VP36; TISSUE-Anther;
MEDLINE-91322485; PubMed-1983191;
                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -i- CATALYTIC ACTIVITY: Bliminative cleavage of pectate to give
oligomaccharides with 4-deoxy-alpha-D-gluc-4-enuronomyl groups at
                                                                                                                                                                                                                             106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -i- TISSUE SPECIFICITY: EXPRESSED IN ANTHERS AND POLLEN.
-i- SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wing R.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Plant Mol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  that have sequence similarity to pectate lyases of the plant pathogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wing R.A., Yamaguchi J., Larabell S.K., Ursin V.M., McCormick S., "Molecular and genetic characterization of two pollen-expressed genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lycopersicon esculentum (Tomato).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-APR-1990 (Rel.
01-FEB-1996 (Rel.
15-JUL-1999 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=4081;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Probable pectate lyase
                                                                                                                                                                                                                                                67 FTLMGRRPLWIIFSGNWNIKLKMEMYIAGYKTFDGRRAEVSYVHV-NGA 114
                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nitted (SEP-1994) to the EMBL/GenBank/DDBJ databases.
FUNCTION: MIGHT BE NEEDED DURING POLLEN DEVELOPMENT AND TUBE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE SPECIFICITY: EXPR
                                                                                                                                                                                                                  FGVIQKGÞÍMÍTFARSMRÍRLTRELIVSSNKTIDGRG---KÝVHIANGA 151
                                                                                                                                              AMBAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PF00544; pec_
                                                                                                                                                                                                                                                                                                                                                    398 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VF36; TISSUE=Anther;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Biol. 14:17-28(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     euasterids I; Solanales; Solanaceae; Solanum
                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14, Created,
33, Last sequence update)
38, Last annotation updat
38, East annotation (EC 4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lyase;
                                                                                                                                                                                                                                                                                                      12.8%;
                                                                                                                                                                                                                                                                                                                                                    44563 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last annotation update)
P56 precursor (EC 4.2.2.2).
                                                                                                                                                                                                                                                                                    10;
                                                                                                                                                                                                                                                                                                   Score 91;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                N-LINKED (GLCNAC. . .) (POTENTIAL)
N-LINKED (GLCNAC. . .) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                 8D676250BD8BC7C8 CRC64;
                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                       392 AA
                                                                                                                                                                                                                                                                                                 0.036;
                                                                                                                                                                                                                                                                                                                 DB 1; Length 398;
                                                                                                                                                                                                                                                                                  15; Indels
                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                N
```

```
RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOO SOOR REPRESENTATION OF SOON OF SOOR REPRESENTATION OF SOON OF SOON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PEL_LILLO
P40973;
01-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TILLO
                                                                                                                                                                                 STRAIN=cv. Nellie white; TISSUE=POLIEN;
Kim S.R., Finkel D.J., An G.;
Submitted (JUN-1993) to the EMBL/GenBank/DDBJ databases.
-!- CATALYTIC ACTIVITY: Eliminative cleavage of pectate to give
                                                                                                                                                                                                                                                                                                                                                                                                                                        Ol-FEB-1995 (Rel. 31, Created)
Ol-FEB-1995 (Rel. 31, Last sequence update)
15-DEC-1998 (Rel. 37, Last annotation update)
Pectate lyase precursor (EC 4.2.2.2).
Lilium longiflorum (Trumpet lily).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Liliales; Liliaceae;
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Griffith I.T., Pollock J., Klapper D.G., Rogers B.L. "Sequence polymorphism of Amb a I and Amb a II, the in Ambrosia artemisiifolia (short ragweed)."; Int. Arch. Allergy Appl. Immunol. 96:296-304(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -!- TISSUE SPECIFICITY: POLLEN AND FLOWERS.
-!- PTM: The N-terminus is blocked.
-!- DISHASE: ONE OF THE MAJOR ALLERGENS OF THE RAGWEED
-!- SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAV
                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=4690;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Antigen; Allergen; Signal; Multigene family; Polymorphism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; M80562; AAA32670.1; -. PIR; D53240; D53240.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           entities requires a license agreement (Se or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             114 RPLWIIFARDMVIRLDRELAINNDKTIDGRGAKVEIINAGFA--IYNVKNII 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR002022; Amb_allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=92234570; PubMed=1809687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE=Pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A., AND VARIANTS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Asteridae; euasterids II; Asterales; Asteraceae; Asteroideae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SUBUNIT: MONOMER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=4212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Heliantheae; Ambrosia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73 RPIWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                    their non-reducing ends.
SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.
                                                                                                                                                                              oligosaccharides with 4-deoxy-alpha-D-gluc-4-enuronosyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            392 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42842 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 89;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SHDGPPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POLLEN ALLERGEN AMB A 1.4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7B6219C12F365DA9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       434 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (See http://www.isb-sib.ch/announce,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.058;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1; Length 392;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rogers B.L., Nault A.K.;
b a II, the major allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FAMILY
                                                                                                                                                                                 groups at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.
```

non-profit

institutions as long

There are no rest

noved. Usage by and for commercial
(See http://www.isb-sib.ch/announce/

```
RESULT 15
PE59_LYCES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
 EMBL; X15499; CAA33523.1; -.
pIR; S27098; S27098.
InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
PR.NTS; PR00807; AMBALLERGEN.
Tyase; Multigene family; Signal.
SIGNAL,
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACT SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lyase; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
ACT_SI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement (Se or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    modified and this statement is not removed. entities requires a license agreement (See )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR002022; Amb_allergen. Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PE59_LYCES STANDARD; PRT; 449 AA.
p15722;
01-APR-1990 (Rel. 14, Created)
01-APR-1990 (Rel. 14, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
Probable pectate lyase P59 precursor (EC 4.2.2.2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; Z17328; CAA78976.1; -.
                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=cv. VF36; TISSUE=Anther;
MEDLINE=91322485; PubMed=1983191;
Wing R.A., Yamaguchi J., Larabell S.K., Ursin V.M., McCormick S.;
"Molecular and genetic characterization of two pollen-expressed genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I; Solanales; Solanaceae; Solanum.
                                                                                                                                                                                                                                                                                                                                                      Erwinia.";
Plant Mol. Biol. 14:17-28(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                     the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                 This
                                                                                                                                                                                                                                                                                                                                                                                     that have sequence similarity to pectate lyases of the plant pathogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=4081;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LAT59.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ycopersicon esculentum (Tomato).
SIGNAL
                                                                                                                        or send an email to license@isb-sib.ch).
                                                                                                                                                                                                  between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               151 RPLWIIFGKSMVIRLKQELIINNDKTIDGRGANV 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEV 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                              their non-reducing ends.
TISSUE SPECIFICITY: EXPRESSED IN ANTHERS AND POLLEN.
SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.
                                                                                                                                                                                                                                                                                                          CATALYTIC ACTIVITY: Eliminative cleavage of pectate to give
                                                                                                                                                                                                                                                                                                                                         FUNCTION: MIGHT BE NEEDED DURING POLLEN DEVELOPMENT AND TUBE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S29612;
                                                                                                                                                                                                                                                                                     oligosaccharides with 4-deoxy-alpha-D-gluc-4-enuronosyl groups at
                                                                                                                                                                                               SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             L18911; AAA33398.1; -.
S29612; S29612.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1
23
312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22
434
312
68
97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48457 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         u
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 89; DB:
Pred. No. 0.06
3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL.

PECTATE LYASE.

POTENTIAL.

N-LINKED (GLCNAC. . .) (POTENTIAL)

N-LINKED (GLCNAC. . .) (POTENTIAL)

C1F3E3ÔAD2BBD064 CRC64;
 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .064;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 434;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                         its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
SPITTI
                                                                                                               Ş
                                                                                                                                       B
                                                                                                                                                              Ş
Search completed: April 23,
Job time : 16 secs
                                               밁
                                                                    Ś
                                                                                            밁
                                                                                                                                                                                       Matches
                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                              CHAIN
ACT SITE
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                    SEQUENCE
                                              162 QKEPLWIIFKRGMNIRLHQEMIMQSDKTIDARGVN---VHITKGAGITLQYIKNV
                                                                                            102 IDKCWRCDPNWADNRKKLADCAMGFGSKAIGGKDGEFYVVTDNSDDYNDPKPGTLRHAVI
                                                                                                                                         57
                                                                      72
                                                                                                                  52 ----WKNNRIWLQFAKLTGFTLMG------
                                                                                                                                                               3 VTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRR-------
                                                                    -RRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHV-NGA----KFIRRV 120
                                                                                                                                         VTLAFNQ---KLRDTMKELKKV-----
                                                                                                                                                                                    al Similarity
39; Conserva
                                                                                                                                                                                                                                     449
                                                                                                                                                                                                                                                23
325
56
80
81
                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                  449 PI
325 PV
56 N.
80 N.
81 N.
50893 MW;
                                                                                                                                                                                                  11.6%;
              2003, 18:05:13
                                                                                                                                                                                         13; Mismatches
                                                                                                                                                                                                                                                          POTENTIAL.
N-LINKED (C
                                                                                                                                                                                                  Score 82.5;
Pred. No. 0.
                                                                                                                                                                                                                                     N-LINKED (GLCNAC. . .) (P
; 17E3AA13F173B03C CRC64;
                                                                                                                                                                                                                                                                                             PROBABLE PECTATE LYASE P59.
                                                                                                                                          ----KGTHNNSTRRGLGTKKYTGPCMVTNP 101
                                                                                                                                                                                                                                               (GLCNAC. . .) (POTENTIAL)
(GLCNAC. . .) (POTENTIAL)
(GLCNAC. . .) (POTENTIAL)
                                                                                                                                                                                                   0.32;
                                                                                                                                                                                                               DB 1;
                                                                                                                                                                                          48;
                                                                                                                                                                                                                Length 449;
                                                                                                                                                                                          Indels
                                                                                                                                                                                          75;
                                                                                                                                                                                          Gaps
                                                                                                  163
                                                                                                                        71
                                                                                                                                                                     51
```

7;

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                               Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                         Database :
                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-142-524D-3
711
                                                                                                                                                                                                                                    SPTREMBL 21:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MKVTVAFNQFGPNRRVFIKR.....KFIRRVDGIIAAYQNPASWK 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     April 23, 2003, 18:04:50 ; Search time 85 Seconds (without alignments) 324.827 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                               671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.4 p5 4578 Copyright (c) 1993 - 2003 Compugen Ltd.
sp_rodent:*
sp_virus:*
sp_vertebrate:*
sp_unclassified:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                  sp_organelle:*
sp_phage:*
                                                                                                                                                                  sp_mhc:*
                                                                                                                                                                                                     sp_invertebrate:*
                                                                                                                 sp_plant:*
                                                                                                                                                                                    mammal:*
                                                                                                                                                                                                                      human:*
                                                                                                                                                                                                                                                                                                                                                                                                                           671580
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

16		· -	1 1	13	12	Ė	. L		٥	œ	-	1 0	ע	u	4.	٠ ر	ا د	N	_		No.	Result
99	100.5	104.5	104	107.5	110.5	110.5	144		146	150	150		л Э	150	TSO	100	. i	720	188		Score	
13.9	14.1	14./		7	15.5	15.5	20.3		J	21.1	21.1	7 - 1	ا د	21.1	21.1	7.17		ر د	26.4			Ouerv
472	453	463	. (7 i	542	501	367	50/	0 0	367	367	36/) (367	367	367	0 0	200	374		Length DB	
10	10	10		5 6	5	10	10	L	,	5	10	Ę	,	5	10	10	-	5	10	: :	B	
Q9LFP5	Q94LR5	Q9SCP2	CALITA	0000	090740	Q93Z04	Q93XL6	Q9M455		202451	Q9M4S2	Q9M4S3		OOMAGA	Q9M4S6	Q9LLT1	CAPPIA	0011	OBRUR1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	H	
										,										1		
,																						
Q91fp5	094775	098cm2	Q9fy19	Q98V40	200	093704	093x16	Q9m4s5	Q93X51	K 100	Ogm4e3	09m4s3	Q9m484	00111100	09m4s6	0911t1	Q911t2	X 0 + C + L	087117	nescription	1	
arabidopsis	ores early	arabidono	juniperus a	arabidopsis	STSGONTOTE	a rabidono	CHEST	cupressus	Juniperus	anganadus.	100000000000000000000000000000000000000	cupressus	cupressus	cubressus		מוזים מוניה) juniperus	Tamondara	2000	nord		
818			D)	318	a t			D)	0	α			60	α			≪	T T C	. ;			

4.	4.	4.	4	4	4.	· w	ω	w	w	ω	· Lu			·	نيا د	N	N	N	N	N	N	N.	N	N.	. N:			. 17
ທ	4	u	N	ц	0	9	ω	7	σ	ហ	4	(L)	κ.	, µ	0	· io	00	7	۱۵	ທັ	4	ũ	Ñ	μ	ò	عاة	ά	, '7
84.5	8	85.5	œ	88	8	89.5	9	90	0	91.5	93	93.5	93.5	93.5	94.5	94.5	94.5	94.5	94.5	94.5	95	95	95.5	95.5	95.5	95.5	95	97
																												13.6
401	227	416	368	438	297	398	324	409	409	368	450	408	407	392	431	408	404	398	354	226	452	392	459	459	432	410	181	455
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
024554	023668	8Z8M6Ö	Q94FT5	Q43862	Q9FY87	Q43783	Q8S345	Q9LTZ0	Q93XJ1	Q9C8G4	Q40319	Q8W116	Q9SDW4	Q9FXD8	023017	Q9C5M8	Q9SB71	Q9M505	Q940Q1	023667	Q9LRM5	Q9FM66	Q9M9S2	023665	Q93Z25	Q9FMK5	023666	064510
0	01	0.1	0.1	.	0.	^	~ ·	٠,	<u>.</u>	^.	~ .	<u> </u>	•	^	•	•	•	•	•	^ -		•	•	•		_	_	_
- 1	~ .		,, ,				34588	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 - x 5 6 6	090894	040319)8w116	09sdw4	09fxd8	023017	w	098571	01		023667			N I	3665	3z25	fmk5	3666	064510
zinnia eleg	arabidonsis	arabidoneis	fracaria an	atogonium to	arabidonsis	musa acumin	Capaician an	arabidonaia	galix of lot	arabidonsis	medicaco ca	arabidoneia	musa acumin	arabidopsis	arabidopsis	arabidonsis	arabidonsis	vitis vinif	arabidopsis	arabidonsis	arabidopeie	arabidonsis	arabidonsis	arabidonsis	arabidonsi	arabidopsi	arabidopsi	arabidopsis

ALIGNMENTS

•												
RESULT 2 Q9LLT2 ID Q9L	용 성	M B Q	SQ	K R	ᄝᄝ	RT	R R	R O C	388	888		RESULT Q8RUR1 ID, Q1 AC Q1
LT 2 T2 Q9LLT2	73 RPLWII 87 RPLWII	Query Match Best Local Sim Matches 37;	SIGNAL CHAIN SEQUENCE	EMBL; AB081 Signal.	1 from Cryp Submitted (EMBL: ABOR1	Futamura N.	SEQUENCE FROM N.A.	NCBI_TaxID= [1]	Eukaryota;	CRY J 1.1 OR CRY J 1.	01-JUN-2002 01-JUN-2002 01-JUN-2002	JLT 1 JR1 Q8RUR1 Q8RUR1;
PRELIMINARY;	FSGNMNIKLKM FSGNMNIKLKM	of Similarity 71. Sim	1 21 22 374 374 AA; 40	AB081310; BAB86287.1;	1 from Cryptomeria japonica Submitted (MAR-2002) to the EMBL: ABO81309: BAB86286 1.	Futamura N., Shinohara K.; "Isolation and characterization of	OM N.A.	3369;	Eukaryota; Viridiplantae; Streptophyta;	1.1 OR CRY J 1.2.	(TrEMBLrel. (TrEMBLrel.	_
Ç.	PMYIAGY 	4 49	21 74 40720 MW;			K.; erizat:		opsida	Japane ae; St	•	21,	Υ,
PRT;	KTFDGRI	Score 188; D Pred. No. 2.6 4; Mismatches	Ω 72					; Conit	se ceda reptoph		Created) Last sec Last ann	PRT;
367 A	RAEVSYV : GAÇVYIC	188; I No. 2.6 matches	OTENTIAL. RY J 1. 90D0085D24BF2BD4		"; nBank/I	cDNAs 6		erales	r). Yta; E		l) guence motati	374
AA.	RPLWIIFSGNMNIKLKMEMYIAGYKTEDGRRAEVSYVHVNGAKFIRRVDGII 124 	DB 10; Length 374; 2.6e-12; hes 11; Indels 0; Gaps 0;	BF2BD4 CRC64;		pollen."; EMBL/GenBank/DDBJ databases.	CDNAs encoding major allerges Cr. :		spermacopnyta; Coniferopsida; Coniferales; Cupressaceae; Cryptomeria. NCBI_TaxID=3369; [1]	Embryophyta; Tracheophyta;		ted) sequence update) annotation update)	AA.
		••										

```
SO DRAP
         RESULT 4
Q9M4S6
ID Q9M4
AC Q9M4
DT 01-C
DT 01-C
DT 01-C
DT 01-C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                       밁
                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 29
                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9LLT2;
01-OCT-2000
01-OCT-2000
                     01-OCT-2000 (TrEMBLrel. 15, 01-OCT-2000 (TrEMBLrel. 15, 101-JUN-2002 (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9LLT1;
01-OCT-2000
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDITINE-21315424; PubMed=11422137;
Midoro-Horiuti T.M., Goldblum R.M., Brooks E.G.;

Clin. Exp. Allergy 31:771-778(2001).

EMBL; AF151427; AAF80164.1; --
EMBL; AF151427; AAF80164.1; --
InterPro; IRR00202; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.

PRINTS; PR00807; AMBALLERGEN.

SEQUENCE 367 AA; 39768 MW; OA6AC2F1BAF89586 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pollen major allergen 1-2.
Juniperus virginiana (Eastern red cedar).
Bukaryota, Viridiplantae, Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus.
                                                  Q9M4S6;
Q9M4S6;
01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                  Midoro-Horiuti T.M., Goldblum R.M., Brooks E.G.;
"Identification of mutations in the genes for the pollen allergens eastern red cedar (Juniperus virginiana).";
Clin. Exp. Allergy 31:771-778 (2001).
EMBL, AF151429, AAF80166.1; -.
InterPro; IPR002022; Amballergen.
Pfam; PF00544; pec lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=39584;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Viridiplantae; Streptophyta; Emb
Spermatophyta; Coniferopsida; Coniferales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pollen major allergen 1-1.
Juniperus virginiana (Eastern red cedar)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9LLT1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-JUN-2002
                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=21315424; PubMed=11422137;
                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=39584;
       Cup s
                                                                                                                                                                                                                                                                                                                                                                                                                    EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                        87
                                                                                                                                                                                 73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KTLWIIFSQNMNIKLKMPLYVAGHKTIDGRGADVHLGNGGPCLFMRKVSHVI 138
                                                                                                                                                       1 pollen allergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29;
                                                                                                                                                                                                               29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                      367 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (TrEMBLrel. 15, Created)
(TrEMBLrel. 15, Last sequence update)
(TrEMBLrel. 21, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (TrEMBLrel.
                                                                                                                                                                                                               Conservative
                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                         39708 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21.1%;
                                                                                                                                                                                                                           21.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 150; DB 10,
No. 3.7e-08;
                        Last sequence update)
Last annotation updat
                                                     Created)
                                                                                                                                                                                                               9; Mismatches
                                                                                                                                                                                                                           Score 150; DB 10;
Pred. No. 3.7e-08;
                                                                                  PRT;
                                                                                                                                                                                                                                                                         DCBD1981A74E4711 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                      annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   367
                                                                                  367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                  A
                                                                                                                                                                                                                                            DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cupressaceae; Juniperus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 367;
                                                                                                                                                                                                                                            Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                  ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                  0
```

```
RESULT 5
Q9M4S4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GN CRAP RAP DR RAT DR R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AC CONTRACTOR OF THE CONTRACTO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
       SCCOSCE PPP AC
                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뭉
                                                                                                                                                                                                                                                                                                                                                                                            Q9M4S3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of Cupressus sempervirens.";
submitted (Apr-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AF257491; AAF72625.1; -.
InterPro; IPR002022; Amb_allergen.
Pfam; pF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
SEQUENCE 367 AA; 39835 MW; B4E9C60108C2C5A3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cupressus sempervirens.
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cupressus.
NCBI TaxID=13469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Monsalve R.I., Villalba M., Rodriguez R.; "Cloning and expression of Cup s 1, the major allergen of the of Cupressus sempervirens.", Submitted (Apr.-2000) to the EMBL/GenBank/DDBJ databases. EMBL; AF257493; AAF72627.1; -...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Cupressus sempervirens.
Eukaryota; Viridiplantae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cup s 1 pollen allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-OCT-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Monsalve R.I., Villalba M., Rodriguez R.; "Cloning and expression of Cup s 1, the m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Spermatophyta; Coniferopsida;
NCBI_TaxID=13469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9M4S4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9M4S4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR002022; Amb allergen. Pfam; PF00544; pec lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
Cupressus sempervirens.

Bukaryota; Viridiplantae; Stre

Spermatophyta; Coniferopsida;

NCBI_TaxID=13469;
                                                                                                                                                                             Cup
                                                                                                                                                                                                              01-OCT-2000 (TrEMBLrel. 15, 01-OCT-2000 (TrEMBLrel. 15, 01-JUN-2002 (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                CUPS1.
                                                                                                                                                                                                                                                                                                                          Q9M4S3;
                                                                                                                                                                                                                                                                                                                                                           Q9M4S3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73 RPIWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              s 1 pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KALWIIFSQNMNIKLKMPLYVAGHKTIDGRGADVHLGNGGPCLFMRKVSHVI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel. 15, (TrEMBLrel. 15, (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   367 AA; 39934 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                 allergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptophyta; Embryophyta; Tracheophyta;
ida; Coniferales; Cupressaceae; Cupressus
                                        Streptophyta; Embryophyta; Tracheophyta; ida; Coniferales; Cupressus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                      Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last annotation update)
                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 150; DB 10;
Pred. No. 3.7e-08;
9; Mismatches 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred.
                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          974D3011D74E3D6E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the major allergen.of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           367
                                                                                                                                                                                                                                                                                                                                                                  367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.7e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cupressaceae; Cupressus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
RESULT 8

Q93X51

ID X61

ID X62

AC Q93X

DT 01-D

DT 01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 7
Q9M4S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                             Q93X51;
01-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             [1]
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
Monsalve R.I., Villalba M., Rodriguez R.,
Monsalve R.I., Villalba M., Rodriguez R.,
"Cloning and expression of Cup s 1, the major allergen of the pollen
of Cupressus sempervirens.",
Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AF257494; AAF72628.1; -
EMBL; AF257494; AAF72628.1; -
                                                      SEQUENCE FROM N.A.
TISSUE=POLLEN;
                                                                                                                       Juniperus oxycedrus (Prickly juniper).
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus.
NCBI_TaxID=69008;
                                                                                                                                                                                                                           JUN O 1.
                                                                                                                                                                                                                                                                01-DEC-2001 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
01-MAR-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.

Monsalve R.I., Villalba M., Rodriguez R.;

"Cloning and expression of Cup s 1, the major allergen o
of Cupressus sempervirens.";

Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases.

EMBL, AP257455; ARF72659.1;
                                                                                                                                                                                                                                          Putative allergen jun o
                                                                                                                                                                                                                                                                                                                                                                    Q93X51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR002022; Amb_allergen. Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cupressus sempervirens.
Eukaryota; Viridiplantae; Stre
Spermatophyta; Coniferopsida;
NCBI_TaxID=13469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9M4S2;
01-OCT-2000 (TrEMBLrel. 15,
01-OCT-2000 (TrEMBLrel. 15,
01-JUN-2002 (TrEMBLrel. 21,
acovacci P., Di Felice G., Pini C.; Cloning of Juniperus oxycedrus major allergen.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9M4S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73 RPIWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s 1 pollen allergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KALWIIFSQNMNIKLKMPLYVAGHKTIDGRGADVHLGNGGPCLFMRKVSHVI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KALWIIFSONMNIKLKWPLYVAGHKTIDGRGADVHLGNGGPCLFMRKVSHVI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        367 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            367 AA;
                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39832 MW; B5DFBF5A61C07A53 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        39819 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21.1%;
                                                                                                                                                                                                                                          19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Streptophyta; Embryophyta; Tracheophyta;
ida; Coniferales; Cupressaceae; Cupressus
                                                                                                                                                                                                                                                           Last annotation update)
                                                                                                                                                                                                                                                                                                           Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                    Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 150; DB 10; Length 367; Pred. No. 3.7e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 150; DB 10;
Pred. No. 3.7e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AE7E055A61C07A53 CRC64;
                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the major allergen of the
                                                                                                                                                                                                                                                                                                                                                             367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         367
                                                                                                                                                                                                                                                                                                                                                          A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cupressus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
RESULT 10
Q93XL6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 9
Q9M4S5
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        SORRE
                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                             Signal.
SIGNAL
                                                           Butteroni C., Di Felice G., Pini C.; "Cloning of Cupressus Arizonica major allergen. Submitted (FEB-2002) to the EMBL/GenBank/DDBJ d
                                                                                                                                                                                                                 01-DEC-2001 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
      SEQUENCE
                                                                                                                                                 Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cupressus
                                                                                                                                                                             Cupressus arizonica.
                                                                                                                                                                                                   Putative allergen Cup a 1 precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9M4S5
Q9M4S5;
01-OCT-2000
                                                   EMBL; AJ278498; CAC37790.2;
                                                                                                     TISSUE=POLLEN;
                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                          NCBI_TaxID=49011;
                                                                                                                                                                                                                                                          Q93XL6;
                                                                                                                                                                                                                                                                      Q93XL6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cupressus sempervirens.

Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cupressus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-OCT-2000 (Tremblrel, 15, 01-OCT-2000 (Tremblrel, 15, 01-JUN-2002 (Tremblrel, 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR002022; Amb_allergen. Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of Cupressus sempervirens.";
Submitted (APR-2000) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AF257492; AAF72626.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Monasive R.I., Villalba M., Rodriguez R.; "Cloning and expression of Cup s 1, the major allergen of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cup s 1 pollen allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=13469;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR002022; Amb allergen.
Pfam; PF00544; pec_lyase; 1.
Pfam; An; 367 AA; 39808 MW; 5D28204DBFD1B9D7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases. EMBL; AJ293767; CAC48400.1; -.
                                                                                                                                                                                                                                                                                                                              87 KALWIIFSQNMNIKLEMPLYVÄGHKTIDGRGADVHLGNGGPCLFMRKVSHVI 138
                                                                                                                                                                                                                                                                                                                                                    73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                87 KALWİIFSQNMNIKLKMPLYVAĞHKTIDĞRĞADVHLĞNĞĞPCLFMRKVSHVI
                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII
                                                                                                                                                                                                                                                                                                                                                                                   28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
     367 1
                                                                                                                                                                                                                                                                                                                                                                                                                                    367 AA;
                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
     AA;
  367 IW;
                                                                                                                                                                                                                                                                                                                                                                                                                                  39894 MW; 5D56FC0E3263B741 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                            20.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21.1%;
                                                                                                                                                                                                                 19,
21,
                                                                                                                                                                                                                                                                                                                                                                                10;
                                                                                                                                                                                                                 Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                           Score 146; DB IV, Pred. No. 1e-07; Smatches 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
PUTATIVE ALLERGEN CUP A 1 AFF97260423A9F28 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                          POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 150; DB 10;
Pred. No. 3.7e-08;
                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                    367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      367
                                                                                                                                                                                                                                                                   AA
                                                                                                                                                                                                                                                                                                                                                                                                      DB_10; Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                              databases
                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pollen
                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
RESULT 11
Q93Z04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCOMPAND TO THE PROPERTY OF T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                              RESULT 12
Q9SV40
ID Q9SV4
AC Q9SV4
DT 01-MA
DT 01-MA
DT 01-JU
DE *Pecta
GN F28P1
                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
01-MAY-2000 (TrEMBLrel. 13, C
01-MAY-2000 (TrEMBLrel. 13, L
01-JUN-2001 (TrEMBLrel. 17, La
Pectate lyase-like protein
F28P10.100.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.

Shinn P., Chen H., Cheuk R., Kim C.J., Koesema E., Meyers M.C.,

Banh J., Boweer L., Carninci P., Dale J.M., Goldsmith A.D.,

Banh J., Boweer L., Carninci P.X., Jones T., Kaniya A.,

Hayashizaki Y., Ishida J., Jiang P.X., Jones T., Kaniya A.,

Karlin-Neumann G., Kawai J., Lam B., Lee J.M., Lin J., Liu S.X.,

Miranda M., Narusaka M., Nguyen M., Onodera C.S., Palm C.J.,

Miranda M., Narusaka M., Nguyen M., Onodera C.S., Palm C.J.,

Pham P.K., Quach H.L., Sakurai T., Satou M., Seki M., Southwick A.,

Pham P.K., Quach H.L., Sakurai T., Satou M., Seki M., Southwick A.,

Pham P.K., Quach H.L., Sakurai T., Satou M., Seki M., Southwick A.,

Pham P.K., Quach H.L., Theologis A., Ecker J.R.,

Warabidopsis CDNA clones "Through A., Ecker J.R.,

"Arabidopsis CDNA clones "Through A., Ecker J.R.,

"Arabidopsis CDNA clones "Through A., Ecker J.R.,

"Arabidopsis CDNA clones "Through A., Ecker J.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-DEC-2001 (TYEMBLrel. 19, Created)
01-DEC-2001 (TYEMBLrel. 19, Last sequence update)
01-MAR-2002 (TYEMBLrel. 20, Last annotation updat
AT3954920/F28P10_100 (Putative pectate lyase).
                                                                                                                                                                                                        Q9SV40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Yamada K., Banh J., Chan M.M., Chang C.H., Chang E., Dale J.M.,
Deng J.M., Goldsmith A.D., Lee J.M., Onodera C.S., Quach H.L.,
Tang C., Toriumi M., Wu H.C., Yamamura Y., Yu G., Bowser L.,
Carninci P., Chen H., Cheuk R., Hayashizaki Y., Ishida J., Jones T.,
Kamiya A., Karlin-Neumann G., Kawai J., Kim C., Lam B., Lin J.,
Meyers M.C., Miranda M., Narusaka M., Nguyen M., Palm C.J.,
Sakurai T., Satou M., Seki M., Shinn P., Southwick A., Shinozaki K.,
Davis R.W., Ecker J.R., Theologis A.;
"Full Length cDNA of gene At5954920 (GI:15233132).";
Submitted (JAN-2002) to the EMBL/GenBank/DDBJ databases.
EMBL; AY058870; AAL24257.1; -.
EMBL; AY058870; AAL24257.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosideurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Arabidopsis thaliana (Mouse-ear cress).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q93Z04;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q93Z04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lyase.
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF00544; pec_lyase; l.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                      139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67 FTLMGRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHV--NGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RPLWIIFSGNWNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KALWIIFSQNMNIKLQMPLYVAGYKTIDGRGADVHLGNGGPCLFMRTASHVI 138
                                                                                                                                                                                                                                                                                                                                                                                                  YGVIQEEPLWIVFSSNMLIRLKQBLIINSYKTLDGRG---SAVHITGNGCLTLQYVQHII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (SEP-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IPR002022; Amb_allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             501 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             53929 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                              Created)
Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 144; DB 10;
Pred. No. 1.7e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 110.5;
Pred. No. 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9E0DE36DEF4C7ABB CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                501
                                                                                                                                                                                                                                                542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .0011;
es 20; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A
                                                                                                                                                                                                                                                   A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16;
                                                                                                                 update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        core eudicots; Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 367;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 501;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2
```

```
SO OS
                                                                                                                   δ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q9FY19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 13
묽
                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                          Matches
                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9FY19
Q9FY19;
01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
Choisne N., Robert C., Brottier P., Wincker P., Cattolic Choisne P., Saurin W., Weissenbach J., Mewes H.W., Nartiguenave F., Saurin W., Quetier F., Salanoubat M.; Lemcke K., Schueller C., Quetier F., Salanoubat M.; Submitted (APR-1999) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosid
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                              MEDLINE=20403896; PubMed=10944464;
MEDLINE=20403896; PubMed=10944464;
Yokoyama M., Miyahara M., Shimizu K., Kino K., Te
Yokoyama M., Miyahara M., Shimizu K., Kino K., Te
"Purification, Identification and cDNA cloning of
major allergen of mountain cedar pollen.";
major allergen of mountain cedar pollen.";
Trycosyr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EU Arabidopsis sequencing project;
Submitted (JUL-1999) to the EMBL/GenBank/DDBJ databases.
EMBL; AL049655; CAB41092.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana (Mouse-ear cress).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence
01-UN-2002 (TrEMBLrel. 21, Last annotatio
Pollen major allergen 2 protein precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Juniperus ashei (Ozark white cedar)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM
                                                                                                                                            InterPro; IPR000743; GH28.
InterPro; IPR000408; Reg_chr_condens.
InterPro; IPR000408; Reg_chr_condens.
Pfam; PF00295; Glyco_hydro_28; 1.
PROSITE; PS00502; POLYGALACTURONASE; UNKNOWN_1.
PROSITE; PS00626; RCC1_2; UNKNOWN_1.
Cell_wall; Glycosidase; Hydrolase; 15gnal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ьуаве.
                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=13101;
                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                           HSSP; P26509; 1BHE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     139 YGVIQEEPLWIVFSSNMLIRLKQELIINSYKTLDGRG---SAVHITGNGCLTLQYVQHII
                                                                                                                                                                                                                                                                                    3iochem. Biophys. Res. Commun. 275:19
                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67 FTLMGRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHV--NGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                            မ
                                                                        Local
                                                                                                                                                                                                                                                                         (POLYGALACTURONASES)
                            IDIFASKNEHLQKNTIGTGRRWKNNRIWLQFAKLTGETLMGRRPLWIIFSGNMNIKLKMP
 IDIFASKRFEIEKCTIGTG-
                                                                                                                                                                                                                                                      AJ404653; CAC05582.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            542 AA;
                                                                                                                     507 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            58573 MW;
                                                                                                                      55730 MW;
                                                                          15.1%; Score 107.5; 32.3%; Pred. No. 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 110.5; DB Pred. No. 0.0013; 9; Mismatches 2
                                                                                                                                      POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EB3779D613B72347 CRC64;
                                                                                                                      2B2E0AA5E958FE5A CRC64;
                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               507
                                                                                                                                                                                                                                                                                       OF GLYCOSYL
                                                       . 0.0025;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 10;
                                                                                        DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20;
    --DDCVAVGTGSSNITIKDL 273
                                                                                                                                                                                                                                                                                                                                    Tsunoo
of Jun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cattolico L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           H.W., Mayer
                                                                                                                                                                                                                                                                                           HYDROLASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    eudicots; Rosidae;
                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                          Length
                                                                                                                                                                                                                                                                                                                                       e H
                                                                                                                                                                                                                                                                                                                                       the
                                                               29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>ა</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                             Gaps
                                  90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
                                                             2
```

Ś

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                               RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 14
Q9SCP2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 14.7%;
Best Local Similarity 30.5%;
 SEQUENCE FROM N.A.
STRAIN=CV. NIPPONBARE;
Buell C.R., Yuan Q., Ouyang S., Moffat K.S., Hill J.N., Gansberger Brenner M., Burgess S., Hance M., Shwartsbeyn M., Tsitrin T., Riggs F., Hsiao J., Zismann V., Blunt S., Pai G., Vanhken S.E., Utterback T.R., Feidblyum T.V., Quackenbush J., Salzberg S.L., White O., Fraser C.M.;
"Oryza sativa chromosome 10 BAC OSJNBb0011A08 genomic sequence.";
Submitted (MAY-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Ehrhartoideae; Oryzeae; Oryza.
                                                                                                                                                                                                                                                    Q94LR5;
01-DEC-2001 (TrEMBLrel. 19, Created)
01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
EMBL; AC034258; AAK54283.1;
                                                                                                                                                                                                                                   Putative pectate lyase.
Oryza sativa (Rice).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lyase.
SEQUENCE
                                                                                                                                                                      NCBI_TaxID=4530;
                                                                                                                                                                                                                                                                                                                                 Q94LR5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EU Arabidopsis sequencing project;
Submitted (DEC-1999) to the EMBL/GenBank/DDBJ databases. ..
EMBL; AL132958; CAB64222.1; ..
InterPro; IPR002022; Amb allergen.
Pfam; PF00544; pec_lyase; 1.
PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (NOV-1999) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.

Nyakatura G., Fartmann B., Dauner D., Sterr W., Holland F.

Weichbelggartner M., Mewes H.W., Lemcke K., Mayer K.F.X.,

Salanoubat M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9SCP2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last seq
01-JUN-2001 (TrEMBLrel. 17, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                   126 PSNMMIKLKQELIFNSYKTLDGRGANVHIVG-GGCITLQYVSNII 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pectate lyase-like protein.
                                                                                                                                                                                                                                                                                                                                                                                                                              80 SGNMNIKLKMPMYIAGYKTEDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                             66 WPNNRQGLADCGIGFGQYALGGKGGQFYFVTDSSDDDAVNPKPGTLRYGVIQEEPLWIVF 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52 WKNNRIWI-----FTLMGRRPLWIIF 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 274 TCGPGHGMSIGSLGKGNSRSEVSFVHLDGAKFIDTQNGL 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       91 MYIAGYKTFDG-----RRAEVSYVHVNGAKFIRRVDGI 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                463 AA;
                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51225 MW; 3424B0DE4ADBA604 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 104.5; DB Pred. No. 0.0047;
                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                           453 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sterr W., Holland R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 463;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Quetier F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            33; Gaps
                                                                                               <u>۲</u>
```

```
밁
                                                                                                                SORR
                                                            Matches
                                                                        Best
                                                                                    Query Match
                                                                                                              SEQUENCE
                                                                                                                         Lyase
                                                                                                                             InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
140 PLWIVFAGDMTIRLNEELLVNSYKTIDGRGANV-HVGAGGA 179
                         74 PLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGA 114
                                                                       Local
                                                                     Similarity
                                                                                                      453 AA; 48006 MW; 1411BEB1A40901DC CRC64;
                                                         Conservative
                                                              14.1%; Score 100.5; DB 10; Length 453; 48.8%; Pred. No. 0.013;
                                                      7; Mismatches
                                                  13;
                                                   Indels
                                                   <u>ب</u>
                                                 Gaps
```

1;

Search completed: April 23, Job time : 89 secs 2003, 18:07:08

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       seq length: 0
seq length: 2000000000
A Geneseq 101002:*

1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  April 23, 2003, 18:04:50 ; Search time 36 Seconds (without alignments) 495.988 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-142-524D-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MKVTVAFNQFGPNRRVFIKR.....KFIRRVDGIIAAYQNPASWK 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.4 p5 4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 908470
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

10	87	4 സര	. w w :	Result No.	
188	188 188	198.5 188 188	523.5 320	Score	
26.4	26.4	27.9 26.4	73.6	Query Match	ф
			105	Ler	
14 15	200	22 16	18	BB	
AAR31937 AAR45541	AAY25664 AAY25668	AAB69120 AAR75388 AAR81587	AAW27370 AAW27369	ID	SUMMARIES
Cry j I. Cryptome Cry j I pollen all	cedar poiten atter Cedar allergen 493 Japanese cedar all	Cedar pollen aller Japanese cedar pol	Multi-epitope pept Multi-epitope pept Multi-epitope pent	Description	

45												ப		31	30	29											18	17	16	15	14	13	12	11
117			.0				.0		120.5		(4)	41.	14	142	٠.					148.5							162	162	-	178	188	188	188	188
16.5		•	•	•	16.9	•	•	•	16.9	•	19.1	٠	٠	20.0	٠	•	٠	•	•	20.9		•	•	•	21.1			٠	22.8		٠	26.4	26.4	26.4
	514																																	
	19														17	22																		15
ေ	12	434	9	2390	2390	6909	390	389	AAB23906	90	4	AAB69117	AAW04345	AAW42121	434	5	AAY25667	AAY25666	AAR81586	AAR93599	AAR69792	AAR74333	AAR53690	AAR69791	AAR45578	AAR45577	AAB69105	AAB69119	AAB69104	AAB69103	AAY25669	AAY25665	AAR82490	AAR60166
																			•											•				
ugi alle	Řι	aecyparis obt	r pollen	cial	ficial s	Cedar pollen aller	Artificial sequenc	Artificial sequenc	Artificial sequenc	Artificial semienc	T-cell epitope pen	Cedar pollen aller	9 '	ress	ecvoaris obt	llen alle	cedar al	ese cedar al	poller		cum a	se cedar po	e cedar po	pnicum	< 1 H 1		r pollen alle	Cedar pollen aller	pollen alle	ollen alle	nese cedar	llergen 49	i Japanese	Japanese cedar pol

ALIGNMENTS

RESULT 1
AAW27371
ID AAW2
XX
AC AAW2
XX

AAW27371 standard; peptide; 134 AA.

AAW27371;

Multi-epitope peptide used as immunotherapeutic agent #3

24-MAR-1998 (first entry)

```
DT PT XXX PAX PT XXX PX
          Peptide immuno:therapeutic agent to treat allergic diseases contains multi-epitope peptide containing {\tt T} cell epitope regions from different allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Multi-epitope peptide; immunotherapeutic agent; allergic disease; T-ceil epitope region; allergen; lymphocyte; immunoglobulin E.
                                                                                                                                                                                                                                           WPI; 1997-470495/43.
                                                                                                                                                                                                                                                                                                                                        Dairiki K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                          (MEIP') MEIJI MILK PROD CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-MAR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12-SEP-1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9732600-A1.
                                                                                                                                                                                                                                                                                                                                        Iwama A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96JP-0080702.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97WO-JP00740.
                                                                                                                                                                                                                                                                                                                                        Kino K, Kume
                                                                                                                                                                                                                                                                                                                                        P
                                                                                                                                                                                                                                                                                                                                        Sone
```

2;

```
RESULT 2
AAW27370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a new immunotherapeutic agent. It comprises T cell epitope regions from 2 or more different allergens (preferably linked via arginine or lysine dimers), where the T cell epitope regions: have a positivity index greater than 100 as measured in a patient group responding to the allergen; have at least 70% reactivity with lymphocytes from patients responding to the allergen; and are not reactive with immunoglobulin E (IgE) antibodies from patients responding to the allergen; and are not reactive with immunoglobulin be used to prevent and treat a wide variety of allergic diseases, e.g. by desensitisation. Side effects, e.g. those mediated by IgE, are reduced.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present sequence represents a multi-epitope peptide which is used as a new immunotherapeutic agent. It comprises T cell epitope regions from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 6; Page
The present sequence represents a multi-epitope peptide which is used a new immunotherapeutic agent: It comprises T cell epitope regions froor more different allergens (preferably linked via arginine or lysine dimers), where the T cell epitope regions: have a positivity index greater than 100 as measured in a patient group responding to the allergen; have at least 70% reactivity with lymphocytes from patients
                                                                                                                                         contains multi-epitope peptide from different allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Multi-epitope peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Multi-epitope peptide
                                                                                                          Claim 6; Page 31; 58pp; Japanese.
                                                                                                                                                                       Peptide immuno: therapeutic agent to treat
                                                                                                                                                                                                                                       Dairiki K,
                                                                                                                                                                                                                                                                    (MEIP ) MEIJI MILK PROD CO LTD.
                                                                                                                                                                                                                                                                                                  10-MAR-1996;
                                                                                                                                                                                                                                                                                                                                 10-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                               12-SEP-1997.
                                                                                                                                                                                                                                                                                                                                                                                              WO9732600-A1
                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                           T-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW27370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW27370 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQ 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DGIIAAYQNPASWK 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FAKLTGFTLMGRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DGIIAAYQNPASWK 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FAKLTGFTLMGRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                         epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               134 AA;
                                                                                                                                                                                                                                       Iwama
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32;
                                                                                                                                                                                                                                                                                                                                 97WO-JP00740
                                                                                                                                                                                                                                                                                                    96JP-0080702.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         region;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   58pp; Japanese
                                                                                                                                                                                                                                     Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                     Kino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        used
                                                                                                                                                                                                                                                                                                                                                                                                                                                         allergen; lymphocyte; immunoglobulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         immunotherapeutic agent; allergic disease;
                                                                                                                                                                                                                                       ,×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 711
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       immunotherapeutic agent #2
                                                                                                                                                                                                                                     Kume
                                                                                                                                                          containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 711; DB 18;
No. 1.7e-82;
                                                                                                                                                          allergic diseases
T cell epitope rec
                                                                                                                                                          epitope regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                               from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RESULT 3
AAW27369
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ព្រះព្រះដូច្ន
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           responding to the allergen; and are not reactive with immunoglobulin (IgB) antibodies from patients responsive to the allergen. The agent be used to prevent and treat a wide variety of allergic diseases, e.g desensitisation. Side effects, e.g. those mediated by IgE, are reduced.
                      The present sequence represents a multi-epitope peptide which is used as a new immunotherapeutic agent. It comprises T cell epitope regions from 2 or more different allergens (preferably linked via arginine or lysine dimers), where the T cell epitope regions: have a positivity index greater than 100 as measured in a patient group responding to the allergen; have at least 70% reactivity with lymphocytes from patients responding to the allergen; and are not reactive with immunoglobulin E (IgE) antibodies from patients responsive to the allergen. The agent can be used to prevent and treat a wide variety of allergic diseases, e.g. by desensitisation. Side effects, e.g. those mediated by IgE, are reduced.
                                                                                                                                                                                                                  Peptide immuno:therapeutic ages
contains multi-epitope peptide
from different allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Multi-epitope peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Multi-epitope peptide used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW27369;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
Sequence
                                                                                                                                                                                         Claim 6; Page 31; 58pp; Japanese.
                                                                                                                                                                                                                                                                              WPI; 1997-470495/43
                                                                                                                                                                                                                                                                                                         Dairiki
                                                                                                                                                                                                                                                                                                                                                                 10-MAR-1996;
                                                                                                                                                                                                                                                                                                                                                                                              10-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                         12-SEP-1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO9732600-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           T-cell epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW27369 standard;
                                                                                                                                                                                                                                                                                                                                    (MEIP )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        iocal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DGIIAAYQNPASWK 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DGIIAAYQNPASWK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FAKLTGFTLMGRR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FAKLTGFTLMGRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          105;
                                                                                                                                                                                                                                                                                                                                    MEIJI MILK PROD CO LTD
                                                                                                                                                                                                                                                                                                       K, Iwama A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  105 AA;
 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
 AA;
                                                                                                                                                                                                                                                                                                                                                                 96JP-0080702
                                                                                                                                                                                                                                                                                                                                                                                              97WO-JP00740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              region; allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73.6%;
78.4%;
                                                                                                                                                                                                                                                                                                         Kino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          immunotherapeutic agent; allergic disease;
                                                                                                                                                                                                                                                                                                         ,7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       as
                                                                                                                                                                                                                                  agent to treat allergic diseases -
tide containing T cell epitope regions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       immunotherapeutic
                                                                                                                                                                                                                                                                                                          Kume
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LKMPMY I AGYKTFDG --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             lymphocyte; immunoglobulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        523.5;
No. 9.8
                                                                                                                                                                                                                                                                                                         A,
                                                                                                                                                                                                                                                                                                          Sone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .8e-59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 reduced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              e.g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           can
g. by
```

Query Match

45.0%;

Score

320;

DB

18;

Length

```
g
        밁
                             á
                                                                               Ş
                                                                                                                                                           RESULT 4
AAB69120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                         Matches
                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Lo
                                                                                                                                                                                  The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 where alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAP59011 to AAP59062 and AAB69094 to AAB69121 represent sequences used
                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                          Example 11; Page 58-59; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                     Novel peptide and its use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cedar pollen allergen T cell epitope derived protein SEQ ID NO:61.
                                                                                                                                                                              in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                 N-PSDB; AAF59044
                                                                                                                                                                                                                                                                                                                                                                                                                                             15-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-MAR-2000; 2000JP-0071710.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JP2000327699-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                   (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU.
(SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Japanese cedar; Cryptomeria japonica; cedar pollen allergen;
T cell epitope; antisugipollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAB69120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB69120 standard;
 71 HVANNNYDPSGKYEGGNIYTKKEAFNVEQFAKLTGFTLMGRA-
                               51
                                                       30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 DGIIAAYQNPASWK
                                                                      1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGR------ 50
                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                     ------RWKNNRIWL------OFAKLTGETLMGRRPLWIIFSGNMNIKLKMPM 91
                                                                                                                                                                                                                                                                                                                                                                            2001-185061/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FAKLTGFTLMGRRPLWIIFSGNWNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRV 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRR------ 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MKVTVAFNQFGÞNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQ 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DGIIAAYQNPASWK 80
                                                                                                       55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                         214 AA;
                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                          99JP-0068316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein; 214 AA
                                                                                                              27.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     53.7%;
                                                                                                     7;
                                                                                                              Score 198.5; DB 2:
Pred, No. 7.4e-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 6.1e-33;
                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                               -DIFASKNFHLQKNKLTSGKIASCLNYGLV 70
                                                                                                                        DB_22; Length 214;
                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6
                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --TSGKIASRRV 66
                                                                                                  93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     54;
                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
112
                                                                                                 ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2;
```

```
RESULT 6
AAR81587
ID AAR8
                                                        밁
                                                                                                                                               XXXSSSSXX
                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                             Query Match
Best Local
                                                                                                   Matches
                                                                                                                                                            AAR75388 is the Japanese cedar pollen allergen Cryj I, from which IT-cell epitope peptides AAR89289-R89295 were derived. The peptides can be used for the prevention and treatment of cryptomeria pollenosis, and also for the investigation of pollinosis.
                                                                                                                                               Sequence
                                                                                                                                                                                                                       Disclosure; Figs 1-2; &pp; Japanese.
                                                                                                                                                                                                                                          New cryptomeria pollen allergen T-cell epitope peptide - used for prevention, treatment and investigation of Japanese cedar pollenosis
                                                                                                                                                                                                                                                                                 WPI; 1995-203834/27.
                                                                                                                                                                                                                                                                                                                             20-OCT-1993;
                                                                                                                                                                                                                                                                                                                                                                          09-MAY-1995.
                                                                                                                                                                                                                                                                                                                                                                                                 JP07118295-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                 Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Japanese cedar; pollen allergen; Cryj I; T-cell epitope; peptides; prevention; treatment; cryptomeria pollinosis.
                                                                                                                                                                                                                                                                                                                                                   20-OCT-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cryptomeria japonica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR75388;
                                                                                                                                                                                                                                                                                                      (MEIP ) MEIJI MILK PROD CO LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Japanese cedar pollen allergen Cryj
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12-MAR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAR75388 standard; protein; 353
                                                  66 RPLWIIFSGNWNIKLKWPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI 117
                                                              73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNPASWK 134
                                                                                                 1 Similarity 37; Conserv
                                                                                                                                              353 AA;
                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                             93JP-0262626.
                                                                                                                                                                                                                                                                                                                                                 93JP-0262626.
                                                                                                                                                                                                                                                                                                                                                                                                                                /note= "T-cell 335..346
                                                                                                                                                                                                                                                                                                                                                                                                                                                     326..340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             211..225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 146..160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       106..120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              91..105
                                                                                                                                                                                                                                                                                                                                                                                                                 /note= "T-cell epitope peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note= "T-cell epitope peptide"
                                                                                                         26.4%;
71.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "T-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "T-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "T-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "T-cell epitope
                                                                                                4; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----GIIAAYQNPASWK 128
                                                                                             Score 188; DB 16;
Pred. No. 3.2e-15;
4; Mismatches 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              epitope peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    epitope peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                         epitope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                        peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          peptide"
                                                                                                                  Length 353;
                                                                                              Indels
                                                                                              0
                                                                                            Gaps
                                                                                                                                                                                                 the.
                                                                                             0
```

AAR81587 standard; Protein; 353 AA.

```
맑
                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                         RESULT 7
                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                              antibodies. 6 Peptides (AAR81580-KOLDU), "LL (AAR81573-79) essential epitopes. These peptides, plus subsequences (AAR81573-79) essential for T-cell recognition, and homologous peptides (AAR81588-96) can be used as immunocherapeutic agents to treat or prevent cedar pollinosis, avoiding side-effects such as anaphylaxis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cedar pollen allergen B.
                                                   Major histocompatibility complex; class II; desensitising; human; allergen; grass; tree; weed; pollen; fungi; mould; food; insect; sting; chiromidae; spider; mite; housefly; fruit fly; sheep blow fly; honeybee; screw worm fly; grain weevil; slikworm; bee moth; larvae; mealworm; cat; cockroach; beetle; dog; horse; cow; pig; sheep; rabbit; rat; guinea pig;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Synthetic peptides based on portions of cedar pollen allergens A (AAR81586) and B (AAR81587) were tested for their ability to activate cedar allergen-specific To-cells, but not allergen-specific IgE antibodies. 6 Peptides (AAR81580-R81585) were identified as T-cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13-MAR-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EP700929-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         antibody; pollinosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cedar;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24-MAY-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAR81587;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       allergen-specific used for treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14-JUL-1995;
                                        mice; gerbil;
                                                                                                                                          Cedar allergen 493634 Cry j IB protein fragment.
                                                                                                                                                                        30-SEP-1999
                                                                                                                                                                                                   AAY25664;
                                                                                                                                                                                                                            AAY25664 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 5; Page 31-32; 36pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New peptide(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hino K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-SEP-1994;
14-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-SEP-1995;
                                                                                                                                                                                                                                                                                                   66
                                                                                                                                                                                                                                                                                                                              73
                                                                                                                                                                                                                                                                                                                             RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII
                                                                                                                                                                                                                                                                                                     RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pollen;
                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Saito S,
                                                                                                                                                                                                                                                                                                                                                                                                                    353
                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                     (first entry)
                                          vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95JP-0200221.
94JP-0242137.
95JP-0200204.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    derived from cedar pollen allergens - activate fic T-cells, but not allergen-specific IgE antibodies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95EP-0306295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cedar pollinosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Taniguchi
                                                                                                                                                                                                                                                                                                                                                                       26.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         therapy;
                                       ; horse; cow; pig; sheep; rabbit; rat; guinea pig; treatment; prevention; hypersensitivity; cedar.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       immunoglobulin E; IgE; T-cell epitope;
                                                                                                                                                                                                                              373 AA
                                                                                                                                                                                                                                                                                                                                                                       Score 188; DB 17;
Pred. No. 3.2e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           immunotherapy
                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                      Length 353;
                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                124
                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                           0
```

```
밁
á
                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       desensitising patients to allergens present in e.g. grass, tree and weed (including ragweed) pollens, fungi and moulds, foods, stinging insects, the chiromidae (non-biting midges), spiders and mites, housefly, fruit fly, sheep blow fly, screw worm fly, grain weevil, silkworm, honeybee, non-biting midge larvae, bee moth larvae, mealworm, cockroach, larvae of Tenibrio molitor beetle, mammals such as cat, dog, horse, cow, pig, sheep, rabbit, rat, guinea pig, mice or gerbil. They can also be used to produce immunological vaccines which may be used to prevent and/or treat conditions involving hypersensitivity to allergens. This sequence represents a cedar (Cedrus sp.) allergen 493834 Cry j IB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This invention describes a novel method of desensitizing a patient to a polypeptide allergen and comprises administering to the patient a peptide derived from the allergen where restriction to a MHC Class II molecule possessed by the patient can be demonstrated for the peptide and the peptide is able to induce a late phase response in an individual who possesses the MHC Class II molecule. The methods can be used for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Desensitizing patients to polypeptide allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9934826-A1
                                                                                                                                                                   Major histocompatibility complex; class II; desensitising; human; allergen; grass; tree; weed; pollen; fungi; mould; food; insect; sting; chiromidae; spider; mite; housefly; fruit fly; sheep blow fly; honeybee; screw worm fly; grain weevil; silkworm; bee moth; larvae; mealworm; cat; cockroach; beetle; dog; horse; cow; pig; sheep; rabbit; rat; guinea pig; mice; gerbil; vaccine; treatment; prevention; hypersensitivity; cedar.
                                                                                                                                                                                                                                                                                                                                                                AAY25668;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 6; Page 73; 117pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kay AB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (IMCO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09-JAN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11-JAN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-JUL-1999
                                                                                                                                                                                                                                                                                           Japanese cedar allergen 541803 Cry j I precursor protein fragment
                                                                                                                                                                                                                                                                                                                               30-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                AAY25668 standard; protein; 373 AA
                                                                                                                                    Cedrus
                                                                                                   WO9934826-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RELWITESGNMNIKLKMEMYTAGYKTEDGRGAQVYTGNGGECVFIKRVSNVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         l Similarity
37; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IMPERIAL COLLEGE INNOVATIONS LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98GB-0020474.
98GB-0000445.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99WO-GB00080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 188; DB 20;
Pred. No. 3.5e-15;
4; Mismatches 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 373;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
```

0

11-JAN-1999;

99WO-GB00080

15-JUL-1999.

21-SEP-1998;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This invention describes a novel method of desensitizing a patient to a C polypeptide allergen and comprises administering to the patient a peptide conditions of the patient and comprises administering to the patient a peptide consessed by the patient can be demonstrated for the peptide and the peptide is able to induce a late phase response in an individual who consistising patients to allergens present in e.g. grass, tree and weed (including ragweed) pollens, fungi and moulds, foods, stinging insects, concluding ragweed) pollens, fungi and moulds, foods, stinging insects, concluding midge (non-biting midges), spiders and mites, housefly, fruit for sheep, rabbit, rat, guinea pig, mice or gerbil. They can also be used to produce immunological vaccines which may be used to prevent and/or treat conditions involving hypersensitivity to allergens. This sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #X#X#X#X#X8X5555555555555555555555555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
    Bond JF,
                                                                                            10-JUL-1992;
                                                                                                                                                                                         Protein
                                                                                                                                                                                                                                                                             Japanese cedar pollen; allergen; antigen; allergy; B cell; T cell
                         (IMMU-) IMMULOGIC PHARM CORP.
                                                      12-JUL-1991;
15-JUL-1991;
                                                                                                                         21-JAN-1993.
                                                                                                                                                  WO9301213-A
                                                                                                                                                                                                                                                         Cryptomeria japonica.
                                                                                                                                                                                                                                                                                                               Cry j I.
                                                                                                                                                                                                                                                                                                                                          03-JUN-1993
                                                                                                                                                                                                                                                                                                                                                                     AAR31937
                                                                                                                                                                                                                    Peptide
                                                                                                                                                                                                                                                                                                                                                                                           AAR31937 standard; Protein; 374 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Desensitizing patients to polypeptide allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 6; Page 75; 117pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1999-458255/38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kay AB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09-JAN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        86 RPLWIIFSGNMNIKLKWEMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IMPERIAL COLLEGE INNOVATIONS LTD.
 Griffith IJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Larche M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          373 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                    91US-0729134.
91US-0730452.
                                                                                           92WO-US05661.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98GB-0000445.
                                                                                                                                                                                       /note= "signal peptide" 22...374
                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26.4%;
Pollock J;
                                                                                                                                                                        "mature Cry j I"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 188; DB 20;
Pred. No. 3.5e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 373;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local !
      Disclosure; Fig 4; 137pp; English
                                       Antigens derived from Japanese cedar pollen allergen Cry j I - contain at least two T cell epitope(s), used to treat or diagnose
                                                                                                                                                                         01-SEP-1992;
10-JUL-1992;
                                                                                    N-PSDB; AAQ55271.
                                                                                                WPI; 1994-035066/04.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fresh pollen and staminate cone samples were collected from a single Cryptomeria japonica (Japanese cedar) tree. RNA was prepd. and used to synthesise cDNA. The cDNA was subjected to successive rounds of PCR to yield a full length Cry j I clone. Cry j I or an antigenic fragment of it may be used for detecting, treating and preventing an allergic response to Japanese cedar pollen allergen. It is capable of modifying both the B and T cell response to Cry j I and T cell response
                                                                                                                                               (IMMU-) IMMULOGIC PHARM CORP.
                                                                                                                                                                                                             15-JAN-1993;
                                                                                                                                                                                                                                        20-JAN-1994.
                                                                                                                                                                                                                                                                WO9401560-A
                                                                                                                                                                                                                                                                                                                                                                                          Japanese cedar; detection; allergy; treatment; diagnosis; T cell epitope; sensitivity.
                                                                                                                                                                                                                                                                                                                                                                                                                                 Cry j I pollen allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR45541;
                                                                                                                                                                                                                                                                                                       Peptide
                                                                                                                                                                                                                                                                                                                                                                   Cryptomeria japonica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          13-JUL-1994 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR45541 standard; Protein; 374 AA.
                                                                                                                                                                                                                                                                                                                                Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nucleic acid sequence encoding Cryptomeria japonica allergen - for the diagnosis treatment and prevention of allergic reactions to Japanese cedar pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 11; Page 42; 69pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-PSDB; AAQ35304.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 1993-045434/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      87 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                         Garman RD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      I antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             374 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                     92US-0938990
                                                                                                                                                                                                            93WO-US00139
                                                                                                                                                                         92WO-US05661
                                                                                                                                                                                                                                                                                                            /note= "signal peptide"
                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                      /note= "mature peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26.4%;
71.2%;
                                                                                                                       Griffith IJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 188; DB 14;
Pred. No. 3.5e-15;
4; Mismatches 11;
                                                                                                                      Kuo M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
```

0,

```
맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 11
                    Ś
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                             Matches
                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The sequence is that of the Japanese cedar pollen allergen Cry j I which contains at least two T cell epitopes. Peptide antigens derived from it can be used for the treatment and diagnosis of allergies associated with Japanese cedar pollen. The peptides have enhanced therapeutic properties but reduced side effects compared to naturally occurring allergens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                     19-JUL-1994.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cryptomeria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Japanese cedar; pollen antigen; allergen; CryjI; sugi; pollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Japanese cedar pollen antigen CryjI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR60166;
                                                                                                                                                                                                                                                                                                                                                                            JP06197768-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR60166 standard; Protein;
                                                                                                                  The coding sequence for the Japanese cedar ("sugi") pollen allergen CryjI was isolated from a cDNA library prepared from polyA mRNA. All or part of the CryjI protein can be used for diagnosis, treatment and prevention of sugi pollinosis.
                                                                                                                                                                                                   Sugi (Japanese cedar) pollen antigen CryjI - is useful diagnosis, treatment and prevention of sugi pollinosis
                                                                                                                                                                                                                                                                                                                              07-JAN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                Protein
                                                                                              Sequence
                                                                                                                                                                              Claim 2; Page 5-7; 9pp; Japanese.
                                                                                                                                                                                                                                                                              (MEIJ ) MEIJI SEIKA KAISHA
                                                                                                                                                                                                                                                                                                      07-JAN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73
                                                          Local
87
                     73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RPLWIIFSGNMNIKLKMPMYIAGYKTEDGRGAQVYIGNGGPCVFIKRVSNVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RPLWIIFSGNWNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                       1994-268680/33.
                     RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        37;
RPLMIIFSGNMNIKLKMPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI 138
                                             37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                           AAQ71601.
                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         374 AA;
                                                                                              374 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                              93JP-0001116
                                                                                                                                                                                                                                                                                                      93JP-0001116
                                                                                                                                                                                                                                                                                                                                                                                                  /label= signal_peptide
22..374
/label= mature_CryjI
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26.4%;
                                                         26.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  374 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score
Pred.
                                             4
                                               Score 188; DB 15;
Pred. No. 3.5e-15;
4; Mismatches 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     188; DB 15;
No. 3.5e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                      Length 374;
                                                Indels
                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.
                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                0
```

RESULT

AAY25665
ID AAYY
XX
AC AAYY
XX
AC AAYY
AX
AC AAYY
AX
AC AAYY
AX
AC AAYY
AX
AC AAYY
AC AAYY
AC ACAY
AC

Cedar allergen 493632 Cry j IA protein fragment.

Major histocompatibility complex; class II; desensitising; human; allergen; grass; tree; weed; pollen; fungi; mould; food; insect; sting; chiromidae; spider; mite; housefly; fruit fly; sheep blow fly; honeybee; screw worm fly; grain weevil; silkworm; bee moth; larvae; mealworm; cat; cockroach; beetle; dog; horse; cow; pig; sheep; rabbit; rat; guinea pig; cockroach; beetle; dog; horse; new; pig; sheep; rabbit; rat; guinea pig;

gerbil; vaccine; treatment; prevention; hypersensitivity;

RESULT 13

AAY25665;

30-SEP-1999

(first entry)

AAY25665 standard; protein;

374

0

```
AAR82490
AAR82XX
AC AAR8
AC AAR8
AC AAR8
AC AAR8
AC Cry
TXX
AC AAR8
AC Cry
TXX
AC Cry
TXX
AC Cry
TXX
AC Cry
TXX
AC AAR8
AC Cry
TXX
AC AAR8
AC Cry
TXX
AC AAR8
AC Cry
TXX
AC CC CC Cry
TXX
AC CC CC Cry
TXX
AC CC CC CC CC CC
TXX
AC CC CC CC CC
TXX
AC CC CC
TXX
AC CC CC CC
TXX
AC CC
TXX
AC CC CC
TXX
AC CC
TXX
AC 
밁
                                                   Ś
                                                                                                                                                 Query Match
Best Local :
                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cry j I; japanese cedar pollen allergen; modified; drug production;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cry j I Japanese Cedar pollen allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAR82490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR82490 standard;
                                                                                                                                                                                                                                                                                         preformulation scheme to develop an optimised drug product for therapeutic treatment of humans suffering from allergy to Japanese cedar pollen allergen or an allergen which is immunologically cross reactive with Japanese cedar pollen allergen. Such modified peptides possess certain characteristics which render them particularly suitable for drug product formulation. Peptide fragments of Cry j I, modified and unmodified, are given in AAR82491-R82525.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  06-APR-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Crytpomeria japonica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              allergy; Crytpomeria japonica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; Figure 1; 60pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Modified Cryptomeria japonica (Cry j) I peptide(s) treating allergy to japanese cedar pollen allergen immunologically cross reactive allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-PSDB; AAT04248.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Shaked
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chen X,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       06-DEC-1994;
08-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-OCT-1995.
                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Novel peptides of cry j I have been modified as a part of a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 1995-366391/47.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (IMMU-) IMMULOGIC PHARM CORP
87
                                                   73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII
RPLWIIFSGNWNIKLKMPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Evans S,
                                                                                                                                                                                                                                               374 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94US-0350225.
94US-0226248.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95WO-US04249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protein; 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Franzen HM,
                                                                                                                                                 26.4%;
                                                                                                                          4;
                                                                                                                    Score 188; DB 16;
Pred. No. 3.5e-15;
4; Mismatches 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kuo M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Powers
                                                                                                                                                                                     Length
                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - useful for
                                                                                                                              0
                                                                                                                              Gaps
```

```
This invention describes a novel method of desensitizing a patient to a CC polypeptide allergen and comprises administering to the patient a peptide CC derived from the allergen where restriction to a MHC Class II molecule CC possessed by the patient can be demonstrated for the peptide and the CC peptide is able to induce a late phase response in an individual who consistising patients to allergens present in e.g. grass, tree and weed cf. (including ragweed) pollens, fungi and moulds, foods, stinging insects, cc. (including ragweed) pollens, fungi and moulds, foods, stinging insects, cc. fly, sheep blow fly, screw worm fly, grain weevil, silkworm, honeybee, cc. mon-biting midge larvae, bee moth larvae, mealworm, cockroach, larvae of the produce immunological vaccines which may be used to prevent and/or treat cc. conditions involving hypersensitivity to allergens. This sequence cc. represents a cedar (Cedrus sp.) allergen 493632 Cry j JA.
                                                                                                                                                                                                                                                                                                                                                         AAY
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
            15-JUL-1999
                                                                                                 Major histocompatibility complex; class II; desensitising; human; allergen; grass; tree; weed; pollen; fungi; mould; food; insect; sting; chiromidae; spider; mite; housefly; fruit fly; sheep blow fly; honeybee; screw worm fly; grain weevil; silkworm; bee moth; larvae; mealworm; cat; cockroach; beetle; dog; horse; cow; pig; sheep; rabbit; rat; guinea pig; mice; gerbil; vaccine; treatment; prevention; hypersensitivity; cedar.
                                              W09934826-A1
                                                                                                                                                                                                                    Japanese cedar allergen 541802 Cry j I precursor protein fragment.
                                                                                                                                                                                                                                                                    30-SEP-1999
                                                                                                                                                                                                                                                                                                                              AAY25669 standard; protein; 374 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Desensitizing patients to polypeptide allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example 6; Page 73; 117pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (IMCO-) IMPERIAL COLLEGE INNOVATIONS LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cedrus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11-JAN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9934826-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                      73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                               87 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           374 AA;
                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98GB-0020474.
98GB-0000445.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99WO-GB00080.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 188; DB 20;
Pred. No. 3.5e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 °,
```

```
RESULT 15
AAB69103
뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This invention describes a novel method of desensitizing a patient to a CC polypeptide allergen and comprises administering to the patient a peptide CC derived from the allergen where restriction to a MHC Class II molecule CC possessed by the patient can be demonstrated for the peptide and the CC possessed by the patient can be demonstrated for the peptide and the CC possesses the MHC Class II molecule. The methods can be used for CC possesses the MHC Class II molecule. The methods can be used for CC desensitising patients to allergens present in e.g. grass, tree and weed CC including ragweed) pollens, fungi and moulds, foods, stinging insects, CC the chiromidae (non-biting midges), spiders and mittes, housefly, fruit CC fly, sheep blow fly, soriew worm fly, grain weevil, silkworm, homeybee, CC non-biting midge larvae, bee moth larvae, mealworm, cockroach, larvae of Tenibrio molitor beetle, mammals such as cat, dog, horse, cow, pig, CC sheep, rabbit, rat, guinea pig, mice or gerbil. They can also be used to produce immunological vaccines which may be used to prevent and/or treat CC conditions involving hypersensitivity to allergens. This sequence CC represents a japanese cedar (Cedrus sp.) allergen 541802 Cry j I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
             WPI; 2001-185061/19
                                                                                                                                                                                                                                                               Cryptomeria japonica
                                                                                                                                                                                                                                                                                                              Japanese cedar; Cryptomeria japonica; cedar pollen allergen
                                                                                                                                                                                                                                                                                                                                                  Cedar pollen allergen T cell epitope derived protein SEQ ID NO:12
                                                                                                     15-MAR-1999;
                                                                                                                                    15-MAR-2000; 2000JP-0071710
                                                                                                                                                                           28-NOV-2000
                                                                                                                                                                                                               JP2000327699-A.
                                                                                                                                                                                                                                                                                                                                                                                                23-APR-2001
                                                (HAYB ) HAYASHIBARA SEIBUTSU KAGAKU (SANY ) SANKYO CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                       AAB69103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAB69103 standard; Protein; 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example 6; Page 75; 117pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Desensitizing patients to polypeptide allergens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21-SEP-1998;
09-JAN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kay AB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11-JAN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (IMCO-) IMPERIAL COLLEGE INNOVATIONS LTD
                                                                                                                                                                                                                                                                                                    cell epitope; antisugipollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRGAQVYIGNGGPCVFIKRVSNVI 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73 RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGII 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             374 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                    99JP-0068316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98GB-0020474
98GB-0000445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99WO-GB00080.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26.4%;
71.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 188; DB 20;
Pred. No. 3.5e-15;
4; Mismatches 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
```

0,

N-PSDB; AAF59012

```
XFXXSSSSSSSSSXXX
Search completed: April 23, 2003, 18:07:49 Job time: 38 secs
                                                                                        밁
                                                                                                                              Ś
                                                                                                                                                                            밁
                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                               Query Match 25.0%; Score 178; DB 22; Length 210; Best Local Similarity 32.5%; Pred. No. 3e-14; Matches 53; Conservative 7; Mismatches 7; Indels 96; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present invention describes a peptide, its complex, derivative or its polymerizate, where the peptide (I) has a formula of: alpha1-alpha2-alpha3-alpha4-alpha5-alpha6-alpha7 alpha1 to alpha7 = amino acid sequence selected from amino acid sequences ranging from 11-19 amino acids derived from T cell epitopes derived from cedar (japanese cedar - Cryptomeria japonica) pollen allergens. The peptide can be used in an antisugipollinosis agent. AAF59011 to AAF59062 and AAB69094 to AAB69121 represent sequences used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 7; Page 39-40; 75pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Novel peptide and its use
                                                                                          111 ---
                                                                                                                     91 MYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNPASW 133
                                                                                                                                                                              68 VHVANNNYDPSGKYEGGNIYTKKEAFNVEQFAKLTGFTLMGRA-----
                                                                                                                                                                                                   51 -----RWKNNRIWL------QFAKLTGFTLMGRRPLWIIFSGNMNIKLKMP 90 ::: |: ||||||||||
                                                                                                                                                                                                                                                                29 MKVTVAFNQFGP-----
                                                                                                                                                                                                                                                                                         1 MKVTVAFNQFGBNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNT-IGTGR------ 50
                                                                                                                                                                                                                                                                                                                                                                                                                                        210 AA;
                                                                                          -DPR------
                                                                                                                                                                                                                                                                    -----FASKNFHLQKNTKLTSGKIASCLNYGL 67
                                                                                          ----GITAAYQNPASW 125
                                                                                                                                                                                                                                                                                                                                                        6,
```

```
Database :
                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                          Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                             Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                  BLOSUM62
                                                                                                                                                                                                                                                                                                                               1 MKVTVAFNQFGPNRRVFIKR.....IASRRVDGIIAAYQNPASWK 80
                                                                                                                                                                                                                                   112892 seqs, 41476328 residues
                                                                                                                                                                                                                                                                                                                                                             US-09-142-524D-1
406
                                                                                                                                                                                                                                                                                                                                                                                                               April 20, 2003, 12:54:25 ; Search time 15.5789 Seconds (without alignments) 212.987 Million cell updates/sec
                                                                                                                                                                                                                                                                          Gapop 10.0 , Gapext 0.5
SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GenCore version 5.1.4 p5 4578 Copyright (c) 1993 - 2003 Compugen Ltd.
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Ś	
S	
乡	
4	
5	
н	
四	
S	

EMBL; D37765; BAA077021.1; -.
EMBL; D29772; BAA06172.1; -.
HSSP; P26509; DHEE.
InterPro; IPR000743; GH28.
Pfam; PF00295; Glyco_hydro_28; 1.

)	2
######################################	J U
14.0 113.9 113.9 113.9 113.9 113.8 113.8	,
511 567 99 215 339 394 842 842 994 1163 246 267	7
	•
OUPE DICUI ODPE HABIN IHFA XYLFA RAN BRIMA BMPĀ BORBU MEMB METTR PHS2 HUMAN PFOL DROME RPOL DROME RPOL DROME RROD PEA RS3 ĀRRPE R83 ĀRRPE R83 MYCGE ALR ĀQUPY	
P08800 dictyosteli P45118 haemophilus Q9pfd5 xylella fas Q9pfd5 xylella fas Q9s642 brugia mala Q45010 borrelia bu P27354 methylosinu P11217 homo sapien P15875 drosophila P12277 pisum sativ Q9yf78 aeropyrum p P47403 mycoplasma Q9rer4 aquifex pyr	

ALIGNMENTS

DR DR	ននននននន	CCCCCCP7777777	2	RE R	RESUL MPA2 ID AC DT DT DT DT OC OC
; D37765; BAA0702 ; D29772; BAA0617 ; P26509; 1BHE. rPro; IPR000743; ; PF000295; Glyco_	his SWISS-PROT entry is copyright. I etween the Swiss Institute of Bioin he European Bioinformatics Institute se by non-profit institutions as odified and this statement is not rentities requires a license agreement results requires a license@isb-sib.c	SEQUENCE OF 55-64. SEQUENCE OF 55-64. MEDLINE=90342988; PubMed=2382797; Sakaguchi M., Inouye S., Taniai M., Ando S., Usui M., Matuhasi T.; "Identification of the second major allergen of Japanese cedar pollen."; Pollen."; Allergy 45:309-312(1990). -!- CATALYTIC ACTIVITY: Random hydrolysis of 1,4-alpha-D-galactosiduronic linkages in pectate and other galacturonans. -!- SUBCELLULAR LOCATION: SECRETED OR ANYLOPLAST (POTENTIAL). -!- SUMILARITY: BELONGS TO FAMILY 28 OF GLYCOSYL HYDROLASES (POLYGALACTURONASES).	SEQUENCE FROM N.A. SEQUENCE FROM N.A. TISSUE=Pollen; MEDLINE=94271186; PubMed=8002972; Komiyama N., Sone T., Shimizu K., Morikubo K., Kino K.; "CONA cloning and expression of Cry j II the second major allergen of Japanese cedar pollen."; Bicchem. Biophys. Res. Commun. 201:1021-1028(1994).	SEQUENCE FROM N.A., AND PARTIAL SEQUENCE. SEQUENCE FROM N.A., AND PARTIAL SEQUENCE. TISSUE=Pollen; MEDLINE=95010777; PubMed=7926035; Namba M., Kurose M., Torigoe K., Hino K., Taniguchi Y., Fukuda S., Usui M., Kurimoto M.; "Molecular cloning of the second major allergen, Cry j II, from "Molecular cloning of the second major allergen, Cry j II, from "BBS Lett. 353:124-128(1994).	RESULT 1 MPA2 CRYJA STANDARD; PRT; 514 AA. MPA2 CRYJA STANDARD; PRT; 514 AA. AC P43212; DT 01-NOV-1995 (Rel. 32, Created) DT 01-NOV-1995 (Rel. 32, Last sequence update) DT 01-NOV-1995 (Rel. 32, Last annotation update) DT 02-NOV-1995 (Rel. 32, Last annotation update) DE 03-NOV-1995 (Rel. 32, Last annotation update) DE (Major pollen allergen Cry j (Cry j II). Cryptomeria japonica (Japanese cedar). CC Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cryptomeria. CC Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cryptomeria. N. NOBI_TaxID=3369;

```
STATES TO STATES TO STATES TO STATES TO STATES THE STATES TO STATES THE STATE
    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROPEP
ACT_SIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MPA1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROSITE; PS00502;
Hydrolase; Glycos;
Amyloplast; Glycoj
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
16-OCT-2001 (Rel. 40, Last annotation update)
Major pollen allergen Cha o 1 precursor.
Chamaecyparis obtusa (Japanese cypress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHAOB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROPEP
                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                       "Purification, characterization and molecular cloning of Cha o 1, a major allergen of Chamaecyparis obtusa (Japanese cypress) pollen."; Mol. Immunol. 33:451-460(1996).
-i- SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q96385;
16-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A., AND PARTIAL SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=13415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Spermatophyta; Coniferopsida;
                                                                                                                                                                                                                         entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE-Pollen;
                                                                   SIGNAL
                                                                                        Allergen;
                                                                                                             Pfam; PF00544; pec
PRINTS; PR00807; AN
                                                                                                                                                          InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31 IDIFASKNFHLQKNTIGTG
                                                                                                                                                                                                                                                                                                                                                                                                      AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IDIFASKNFHLOKNTIGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CHAOB
                                                                                                                                                                             D45404; BAA08246.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                IPR002022; Amb_al
0544; pec_lyase; 1
                                                                                      Glycoprotein; Signal.
°110
148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     514 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ycosidase; Cell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ycoprotein; Allergen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                             AMBALLERGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POLYGALACTURONASE; 1.
idase; Cell_wall; Signal; Zymogen; Fruit ripening;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 433
514
278
460
472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21
375
110
148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56645 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-LINKED (GLCNAC. . .) (POT

F -> L (IN REF. 2).

V -> L (IN REF. 2).

DI -> VV (IN REF. 2).

Q -> K (IN REF. 2).

K -> N (IN REF. 2).

K -> S (IN REF. 2).

N -> S (IN REF. 2).

G -> R (IN REF. 2).

G -> R (IN REF. 2).

M -> I (IN REF. 2).

M -> C (IN REF. 2).

R -> C (IN REF. 2).
                                                                                                                                                          llergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 99 DB 1;
Pred. No. 0.0003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROBABLE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POSSIBLE POLYGALACTURONASE
MAJOR POLLEN ALLERGEN CHA O 1.
N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Coniferales; Cupressaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              375 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.00031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 514;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                            a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
THE PROPERTY OF STREET OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                       RESULT 4
MPA1_JUN!
                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                               밁
        SEPPPRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                 Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CARBOHYD
CARBOHYD
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MPA1 CU
Q9SCG9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CUPAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Aceituno E., Del Pozo V., Minguez A., Arrieta I., Cortegano I., Cardaba B., Gallardo S., Rojo M., Palomino P., Lahoz C.; "Molecular cloning of major allergen from Cupressus arizonica pollen:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Coniferopsida, Coniferales, Cupressaceae, Cupressus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16-OCT-2001 (Rel. 40,
16-OCT-2001 (Rel. 40,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cupressus arizonica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Major pollen allergen Cup a 1.
MPA1_JUNAS STANDARD; PRT; 367
981294; Q9ZNU7;
16-OCT-2001 (Rel: 40, Created)
16-OCT-2001 (Rel. 44, Last sequence upda
15-JUN-2002 (Rel. 41, Last annotation up
Major pollen allergen Jun a 1 precursor.
Juniperus ashei (Ozark white cedar).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                       JUNAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Allergen; Glycoprotein.
CARBOHYD 127 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; AJ243570; CAB62551.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=20571526;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=49011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            234 MKVTVAFNOFGPNAGORMPRARYGLÍH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ptam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR002022; Amb_allergen.
                                                                                                                                                                                                                                                                                            213 MKVTVAFNOFGPNAGORMPRARYGLVH 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MKVTVAFNOFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                             ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1. AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CUPAR
                                                                                                                                                                                                                                                                                                                                     MKVTVAFNQFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PF00544; pec_lyase; 1.
S; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Exp. Allergy 30:1750-1758(2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 178
293
352
375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         346 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ĀΑ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=11122214;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    178
293
352
40258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                             18.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37589 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED (GLCNAC. . .) (P

N-LINKED (GLCNAC. . .) (P

N-LINKED (GLCNAC. . .) (P

MW; 81CD91DF7066DBBF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 74; DB
Pred. No. 0.21
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                    ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N-LINKED (GLCNAC. .

N-LINKED (GLCNAC. .

N-LINKED (GLCNAC. .

F1281DCDA1D5DFD0 C
                                                                                                                                                                                                                                                                                                                                                                                                                               Score 73;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 0.2
3; Mismatches
                                                                                                                                                                    367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GLCNAC. . .) (POTENTIAL) (GLCNAC. . .) (POTENTIAL) (GLCNAC. . .) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1;
0.21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 375;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 346;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                          0,
```

```
REACT OCCUPANT OCCUPANT
                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                             A29B_DROME STANDARD, PRT; 234 AA
O46137; Q9TW73; Q9TW05; Q9TW06; Q9TW07; Q9U976; Q9U977; Q9U978;
Q9U979; Q9V3Q5;
16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
                                      Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Mandibulata; Pancrustacea; Hexapoda;
Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                 DROME
   SEQUENCE FROM N.A.,
                                                                                                          Accessory gland protein Acp29Ab precursor. ACP29AB OR CG17797.
                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00544; pec lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                       234 MKVTVAFNOFGPNAGQRMPRARYGLVH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Allergen; Glycoprotein; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; AF106663; AAD03609.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Isolation and characterization of the mountain cedar (Juniperus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=99414162; PubMed=10482835; Midoro-Horiuti T., Goldblum R.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Molecular cloning of mountain cedar (Juniperus ashei) pollen major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Midoro-Horiuti T.M., Goldblum R.M., Kurosky A., Wood T.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Juniperus.
NCBI_TaxID=13101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          allergen, Jun a 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=99414163; PubMed=10482836;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE=Pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.,
117-124; 134-140; 1
                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                    1 MKVTVAFNQFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Allergy Clin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AMB A I/AMB A II/CRY J I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IN NORTH AMERICA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AF106662; AAD03608.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pollen major allergen, Jun a 1.";
ergy Clin. Immunol. 104:608-612(1999).
SEASE: THIS PROTEIN CAUSES SEVERAL SEASONAL ALLERGIS RHINITIS
                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                148
178
367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Clin.
                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BELONGS TO THE POLYSACCHARIDE LYASE FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Immunol. 104:613-617(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 160-164; 256-263 AND
                                                                                                                                                                                                                                                                                                                                                                                                                                  367
148
178
 FUNCTION,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Goldblum R.M., Kurosky A., Goetz D.W.,
                                                                                                                                                                                                                                                                                                                                                                 18.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                 39824 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AND SEQUENCE OF 31-38; 42-50; 58-80; 88-94;
                                                                                                                                                                                                                                                                                                                                                                   Score 73;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                           MAJOR POLLEN ALLERGEN JUN A 1.
N-LINKED (GLCNAC. .) (POTENT
N-LINKED (GLCNAC. .) (POTENT
AND TISSUE SPECIFICITY
                                                                                                                                                                                                                                                                                                                                                                                                              FC9B81E675662E49 CRC64;
                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 322-325
                                                                                                                                                                                                                                                                                                                                                                              DB 1; Length 367;
                                                                                                                                                                                                                                                                                                                                                                   .27;
                                                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a collaboration
                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           မ္
                                                                                                                                                                                                                                                                                                                                                 0
```

```
RA Addams D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D., RA Addams M.D., Celniker S.E., Holt R.A., Hoskins R.A., Galle R.F., RA George R.A., Levis S.E., Holt R.A., Hoskins R.A., Galle R.F., RA George R.A., Levis S.E., Richards S., Ashburner M., Henderson S.M., RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X., RA Bardon R.C., Rogers Y.-H.C., Blazer R.G., Change M., Pfeiffer B.D., RA Man K.H., Doyle C., Baxter E.G., Helt G., Melson C.R., Miklos G.L.G., RA Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.R., RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M., RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S., RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P., RA Burtis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I., Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P., RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P., RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Dietz S.M., A Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P. RA Borkova D., Bernardis J., Mays A.D., Dew I., Dietz S.M., A Horstin D., Houston K.A., Howland T.J., Hernandez J.R., Pleischmann W., RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z., RA Hostin D., Houston K.A., Mixon K., Nusskern D.A., Ketchum K.A., Martiel B., Mintosh T.C., McLeod M.P., McPherson D., RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Ling Y., Lin X., RA Holson D.R., Nelson K.A., Nixon K., Nusskern D.R., Paoleb J.M., RA Merkelov G., Milshina N.V., Mobarry C., Morris J., Nelson D.L., RA Melson D.R., Nelson D.L., Nelson D.R., Nelson D.R., Nelson D.L., RA Mang Z.-Y., Wassarman D.A., Weithers R.D.C., Scheeler F., Sahth T., RA Sylrakas R., Tector C., Turner R., Venter E., Wang A.H., Wang X., RA Mang Z.-Y., Wassarman D.A., Weithers C., Wan D., Stupskin M.P., Smith T., RA Mang Z.-Y., Massarman D.A., Weithers C., Wan D., Sahth T., RA Mang Z.-Y., Massarman D.A., Weither S., Zhu X., Smith H.O., Theng L., Wang A.
                                             -!- SIMILARITY: CONTAINS 1 C-TYPE LECTIN FAMILY DOMAIN
                                                                                        -!- SUBCELLULAR LOCATION: Secreted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Begun D.J., Whitley P., Todd B.L., Waldrip-Dail H.M., Clark A.G., "Molecular population genetics of male accessory gland proteins in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN=Various strains;
MEDLINE=20556153; PubMed=11102381;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-Canton-S; TISSUB-Male accessory gland;
MEDLINE-98135120; PubMed-9474779;
Wolfner M.F., Harada H.A., Bertram M.J., Stelick T.J., Kraus K.W.,
Kalb J.M., Lung Y.O., Neubaum D.M., Park M., Tram U.K.;
"New genes for male accessory gland proteins in Drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=20196006; PubMed=10731132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=Berkeley;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genetīcs 156:1879-1888(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=Various strains;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Positive selection drives the evolution of the Acp29AB accessory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=99282496; PubMed=10353898
SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biochem. Mol. Biol.
                                                                         FLUID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       in Drosophila.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27:825-834(1997).
                                                                                    OF THE ACCESSORY GLAND AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ij
```

Swiss Institute of Bioinformatics

and the

EMBL outstation

```
entities requires a license agreement (Some send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the European Bioinformatics Institute. There are no restrictions on use by non-profit institutions as long as its content is in no modified and this statement is not removed. Usage by and for commer entities requires a license agreement (See http://www.isb-sib.ch/annou
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        between the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL;
EMBL;
           Pfam; PF00059; lectin c; 1.

Pfam; PF00059; lectin c; 1.

PROSITE; PS00615; C TYPE LECTIN 1; FALSE NEG.

PROSITE; PS50041; C TYPE LECTIN 2; 1.

Behavior; Lectin; Signal; Polymorphism.

POTENTIAL.

POTENTIAL.

TAND
                                                                                                                                                                                                                 EMBL;
                                                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                                              EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL
                                                                                                                                                              EMBL;
                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    L; U85758; AAB96382.1,
L; AJZ40513; CAB53187.1;
L; AJZ40513; CAB53188.1;
AJZ40515; CAB53189.1;
BL; AJZ40516; CAB53190.1;
BL; AJZ40516; CAB53191.1;
BL; AJZ40517; CAB53191.1;
BL; AJZ40518; CAB53191.1;
BL; AJZ40518; CAB53193.1;
MBL; AJZ40519; CAB53193.1;
MBL; AJZ40521; CAB53194.1;
MBL; AJZ40521; CAB53194.1;
MBL; AJZ40521; CAB53194.1;
                                                                                                                                                EMBL;
                                                                                                      FlyBase; FBgn0015583; Acp29Ab.
InterPro; IPR001304; Lectin_C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AJZ40519;
AJZ40521;
AJZ40522;
AJZ40523;
AJZ40525;
AJZ40525;
AJZ40526;
AJZ40527;
AJZ40527;
AJZ40529;
AJZ40531;
AJZ40531;
AJZ40531;
AJZ40533;
AJZ40533;
AJZ40533;
AJZ40533;
AJZ40533;
AJZ40534;
AJZ40544;
AJZ40545;
AJZ40545;
AJZ40546;
AJZ40546;
AJZ40546;
AJZ40546;
AJZ40549;
AJZ40549;
AJZ40549;
                                                                                                                                                                                                                 AY010538;
AY010539;
AY010540;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      AJ240551
AY010527
                                                                                                                                            AY010542; AAG32574.1; -. AY010543; AAG32575.1; -. AE003621; AAF52665.1; -.
                                                                                                                                                                         CAB53205.1 -- CAB53207.1 -- CAB53207.1 -- CAB53210.1 -- CAB5321.1 -- CAB53215.1 -- CAB53221.1 -- CAB53221.1 -- CAB53221.1 -- CAB53225.1 -- CAB53255.1 -- CAB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAB53197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAB53204
 234
 ACCESSORY GLAND PROTEIN ACP29AB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                its
```

```
RESULT 6
SBP_CRYJA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PARREN REPRESENTATION OF SOME PROPERTY OF STREET OF STRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARIANT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANT
VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
CARBOHYD
CARBOHYD
VARIANT
VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SBP_CRYJA
P18632;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cryptomeria japonica (Japanese cedar).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Coniferopsida; Coniferales; Cupressaceae; Cryptomeria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-NOV-1990 (Rel. 16, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
101-NOV-1995 (Rel. 39, Last annotation update)
30-NAY-2000 (Rel. 39, Last annotation update)
Sugi basic protein precursor (SBP) (Major allergen Cry j 1) (Cry j I).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VARIANT
Matuhasi T.;
"N-terminal amino acid sequence of a major allergen of Japanese cedar
pollen (Cry j I).";
FEBS Lett. 239:329-332(1988).
                                                                                                                MEDLINE=89031257; PubMed=3181436;
Taniai M., Ando S., Usui M., Kuri
                                                                                                                                                                                                                                            Namba M., Kurose M.,
Submitted (JUL-1994)
                                                                                                                                                                                                                                                                                                                                                                                                 of Japanese cedar
                                                                                                                                                                                                                                                                                                                                                                                                                                                Kino K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=94183234; PubMed=8135802;
Sone T., Komiyama N., Shimizu K., Kusakabe T., Morikubo K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=3369;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      148 NIQDEKELDGILALAPNNSYW 168
                                                                                                                                                                       TISSUE-Pollen;
                                                                                                                                                                                            SEQUENCE OF 22-41.
                                                                                                                                                                                                                                                                                             TISSUE=Pollen;
                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                               of Japanese cedar pollen.";
Biochem. Biophys. Res. Comm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rissuE=Pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                      Cloning and sequencing of cDNA coding for Cry j I, a major allergen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QLQPLKIIMRHHASNIKASNNIKMRRFEKVGSRHFHIEKNLMQTWFEAYVTCRKMNGHLA 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QFGPNRRVFIKRVSNV----IIHGRRIDIFASKNFHLQKNTIGT--GRRISLKLTSGKIA 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S----RRVDGIIAAYQNPASW 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         234 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    137
61
164
29
59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    228
164
29
59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         214
27173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AND PARTIAL SEQUENCE
                                                                                                                      Usui M., Kurimoto M., Sakaguchi M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17.7%;
25.9%;
                                                                                                                                                                                                                                              Torigoe K., Fukuda S., Kurimoto M.;
to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                          Commun. 199:619-625(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIM30, ZIM32, ZIM37, ZIM42 AND ZIM56)

K -> M (IN STRAINS BERKELEY, LA13, LA
LA15, LA16, MO1B, MO8B, MO40B, MO52B,
MA5, MA21, MA45; MA52, MA67, ZIM29,
ZIM30, ZIM42 AND ZIM56).

E -> D (IN STRAIN MA7).

E -> D (IN STRAIN MA7).

Wi; 8954CD321548OF3E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MA13, MA18, MA20, MA21, MA45, MA48, MA513, MA18, MA20, MA21, MA52, W312, W316, M352, MA67, W31, W36, W39, W312, W316, W356, ZIM2, ZIM26, ZIM29, W326, W347, W356, ZIM37, ZIM32 AND ZIM36).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-LINKED (GLCNAC. .) (POTENTIAL).

N-LINKED (GLCNAC. .) (POTENTIAL).

K -> N (IN STRAINS MA7, WS16 AND WS26).

K -> R (IN STRAINS LA1, LA3, LA4, LA5, LA14, LA15, LA15, LA15, LA15, LA16, LA21, LA25, LA34, LA18, MO1B, MO5B, MO5B, MA8, MA8, MA13, MA14, MA20, MA21, MA45, MA48, MA52, MA67,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 72; DB 1;
Pred. No. 0.22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WS19)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C-TYPE LECTIN (LONG FORM)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -> L (IN
A35, M02B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (IN STRAINS LA16 AND LA35).
(IN STRAINS LA14, LA14, LA16,
NOZB, MO15B, MO36A, MO37A,
MO52B, MO58B, MO80B, MA5, MA7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIM29, ZIM30, ZIM56, WS6 AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                374 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 234;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                           Inouye S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LA34, LA35,
MA13, MA18,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          M052B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MA50,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
••
```

```
DARB
                                                                                            밁
                                                                                                             Ś
                                                           RESULT 7
                                                                                                                                                                               Query Match
Best Local Similarity
Matches 15; Conserv
             P25232;
01-MAY-1992
                                    HUMAN
RS18_HUMAN
                                                                                                                                                                                                              VARIANT
VARIANT
                                                                                                                                                                                                                                    VARIANT
VARIANT
                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                          VARIANT
VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                          the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; D34639; BAA07020.1; -. PIR; A44773; A44773. GlycoSuiteDB; P18632; -.
                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR002022; Amb allergen. Pfam; PF00544; pec_lyase; 1. PRINTS; PR00807; AMBALLERGEN.
                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; D26544; BAA05542.1; -. EMBL; D26545; BAA05543.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        entities requires a license agreement (Some send an email to license@isb-sib.ch).
                                                                                     234 MKVTVAFNQFGPNCGQRMPRARYGLVH 260
                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                 CARBOHYD
                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                               Allergen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the En
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hijikata A., Matsumoto I., Kojima K., Ogawa H., "Antigenicity of the oligosaccharide moiety of the Japanese cedar (Cryptomeria japonica) pollen allergen, Cry jI.", Int. Arch. Allergy Immunol. 105:198-202(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TISSUE=Pollen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRUCTURE OF CARBOHYDRATES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=95003748; PubMed=7920021;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CARBOHYDRATES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE=Pollen;
                                                                                                            1 MKVTVAFNOFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1. AMB A I/AMB A II/CRY J'I SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                          Glycoprotein; Multigene family; Signal.
                                                                                                                                                                            361
374 AA;
   (Rel.
                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                    22
158
191
                                 STANDARD;
  22,
                                                                                                                                                                                                                                                                                                    374
158
191
                                                                                                                                                                                                  12
143
202
221
358
                                                                                                                                                                             40645 MW;
                                                                                                                                           17.5%;
  Last
            Created)
sequence update)
                                                                                                                                                                       L -> F (IN CRY J 1-B
H -> Y (IN CRY J 1-B
S -> T (IN CRY J 1-B
L -> S (IN CRY J 1-B
C -> H (IN CRY J 1-B
O -> H (IN CRY J 1-B
K -> Q (IN CRY J 1-B
K -> Q (IN CRY J 1-B
                                                                                                                                                                                                                                                        N-LINKED (GLCNAC...) (
N-LINKED (GLCNAC...) (
/FTId=CDR 000135
N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
                                                                                                                                 ω
••
                                                                                                                                                                                   /FTId=CAR 000136.
L -> F (IN CRY J 1-B)
H -> Y (IN CRY J 1-B)
S -> T (IN CRY J 1-B)
L -> S (IN CRY J 1-B)
-> H (IN CRY J 1-B)
O -> H (IN CRY J 1-B)
O -> H (IN CRY J 1-B)
                                                                                                                                           Score 71;
Pred. No.
                                                                                                                                                                                                                                                                                                                       SUGI BASIC PROTEIN.
                                                                                                                                 Mismatches
                                152 AA
                                                                                                                                          0.48;
                                                                                                                                                  DB 1; Length 374;
                                                                                                                                                                          CRC64;
                                                                                                                               Indels
                                                                                                                                                                                                                                                               (POTENTIAL).
                                                                                                                                                                                                                                                                                               (COMPLEX).
                                                                                                                                                                                                                                                                                                         (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a collaboration
                                                                                                                             <u>.</u>
                                                                                                                            0,
```

EMBL; EMBL; EMBL; EMBL;

M76762; AAA16796.1; --AF100956; AAC69898.1; --AF110520; AAC97978.1; --AB000911; BAA19211.1; ---X69150; CAB56794.1; -. M76763; AAA16795.1; -. M76762; AAA16796.1; -.

S30393; S30393.

HGNC:10401; RPS18

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBE outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                         Kimura M., Kawakami K., Suzuki H., Hamasima N., Submitted (FEB-1997) to the EMBL/GenBank/DDBJ databases.
-I- FUNCTION: INVOLVED IN THE BINDING OF FMET-TRNA AND, HENCE, INITIATION OF TRANSLATION (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                       SPECIES=Pig;
                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                       SPECIES=Mouse; STRAIN=129/SvJ;
Rowen L., Qin S., Madan A., Loretz C., James R., Dors M., Mix L.,
Hall J., Lasky S., Hood L.;
                                                                                                                                                                                                                                                                           -!- SIMILARITY: BELONGS TO THE S13P FAMILY OF RIBOSOMAL PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=91337062; PubMed=1872840;
Chan Y.-L., Paz V., Wool I.G.;
"The primary structure of rat ribosomal protein S18.";
Biochem. Biophys. Res. Commun. 178:1212-1218(1991).
                                                                                                                                                                                                                                                                                                                                                                                             Submitted (OCT-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                        "Sequence of the mouse major histocomaptibility locus class
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein 813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Macmurray A.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (OCT-1998) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chassin D., Bellet D., Koman A.; "The human homolog of ribosomal protein S18."; Nucleic Acids Res. 21:745-745(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPECIES=Human; TISSUE=Placenta;
MEDLINE=93181276; PubMed=844168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "The murine MHC encodes a mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=92182530; PubMed=1543907;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SPECIES=Human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. NCBI_TaxID=9606, 10090, 10116, 9823;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sus scrofa (Pig).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rattus norvegicus (Rat), and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-JUN-2002 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              40S ribosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 iomo sapiens
                                                                                                                                     X57529; CAA40750.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genome 2:87-95(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-Sprague-Dawley;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (Human),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rel. 41,
protein
                                                                                                                       CAA20231.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Shin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=8441687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             H.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last annotation update) S18 (KE-3) (KE3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        homolog of bacterial ribosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE=Liver;
```

```
SQ FT DR DR DR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
            MML; Z49702;
SGD; S0004724; YMR118c.

SGD; S0004724; YMR118c.

InterPro; IPRO00701; Sdh cyt.

Pfam; PP01127; Sdh cyt.

PROSITE; PS01000; SDH_CYT_1; 1.

PROSITE; PS01000; SDH_CYT_2; 1.

PROSITE; PS01001; SDH_CYT_2; 1.

PROSITE; PS01001; Tricarboxylic acid cycle; Electron transport; Hypothetical protein; Tricarboxylic acid cycle; Electron transport; Hypothetical protein; Tricarboxylic acid cycle; Electron transport; Hypothetical protein; Transmembrane; Mitochondrion; Transit peptide.

Heme: Transmembrane; Mitochondrion (POTENTIAL).

PUTATIVE SUCCINATE DEHYDROGENASE

PUTATIVE SUCCINATE DEHYDROGENASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MIM; 180473; -.

MGD; MGI:98146; Rps18.

InterPro; IPR001892; Ribosomal S13.

Pfam; PF00416; Ribosomal S13; 1.

ProDom; PD001363; Ribosomal S13; 1.

PROSITE; PS00646; RIBOSOMAL S13; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YEAST
YM07_Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ribosomal protein.
                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation—the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Saccharomyces cerevisiae (Baker's yeast).
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YM07_YEAST
Q04487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hunt S., Bowman S., Barrell B.G., Rajandream M.A.; Submitted (MAY-1995) to the EMBL/GenBank/DDBJ databases. Submitted: CYTOCHROME B. INVOLVED IN SYSTEM II OF THE MITOCHONDRIAL ELECTRON TRANSPORT CHAIN WHICH IS RESPONSIBLE FOR TRANSFERRING ELECTRONS FROM SUCCINATE TO UBIQUINONE (COENZYME)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-NOV-1997
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                             inner membrane (By similarity).
-!- SIMILARITY: BELONGS TO THE CYTOCHROME B560 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Putative succinate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                               - |- SUBCELLULAR LOCATION: Integral membrane protein. Mitochondrial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=S288c / AB972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MR118C OR YM9718.17C
 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62 ASRRVDGIIAAYQNPASWK 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60 TEDEVERVÍTIMONPROYK 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRR-----ISLKLTSGKI 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PEKFQHILRVLNTNIDGRRKIAFAITAIK-----GVGRRYAHVVLRKADIDLTKRAGEL 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  152 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel.
(Rel.
(Rel.
 175
196 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35, Created;
35, Last sequence update)
41, Last annotation update)
12 dehydrogenase cytochrome B subunit, mitochondrial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17719 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17.2%;
 22309
   WW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  D -> H (IN REF. 4; AAA16796).
; 4DAF0662C3F37F22 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 70; DB 1
Pred. No. 0.23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
 41413998B9B2B057 CRC64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           196 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1; Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (COENZYME Q)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 9
                                                                                                                                                                                                                                                                                 片
                                                                                                                                                                                                                                                                                                            á
 RRR OCC OCC DIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-NOV-1997 (Rel. 3
01-NOV-1997 (Rel. 3
16-OCT-2001 (Rel. 4
Hypothetical 15.8 k
                                                                                                                                                                                                                        TITE 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Hypothetical 15.8 kDa protein in pinF2 3'region (ORF2).
Blamid Tile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGRTU
                                                                                                      p40973;
01.FEB-1995 (Rel. 31, Created)
01.FEB-1995 (Rel. 31, Last sequence update)
01.FEB-1998 (Rel. 37, Last annotation update)
15.DEC-1998 (Rel. 37, Last annotation update)
Pectate lyase precursor (EC 4.2.2.2).
Lilium longiflorum (Trumpet 111y).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  044433;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YPI2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kanemoto R.H., Powell A.T., Akiyoshi D.E., Regier D.A.,
Kerstetter R.A., Nester E.W., Hawes M.C., Gordon M.P.,
"Nucleotide sequence and analysis of the plant-inducible locus pinf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae group;
                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; M19352; AAA82504.1; -
Hypothetical protein; Plasm:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            J. Bacteriol. 171:2506-2512(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rhizobiaceae; Rhizobium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=89213933; PubMed=2708311;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Plasmid pTiA6.
Kim S.R., Finkel D.J., An
                                                                                   Bukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Magnoliophyta, Liliopsida, Liliales, Liliaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             from Agrobacterium tumefaciens.";
            SEQUENCE FROM N.A. STRAIN=cv. Nellie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        49
                                                                                                                                                                                                                                                                                                            18 IKRVSNVIIH-GRRIDIFASKNFHLQKNTIGTGRRISLKLTSGKIASRRVD 67
                                                                                                                                                                                                                                                                                 1 MKRISTILVGVFLATPVYAADNIH----TLGTLSEIELALTAGKPVNVTVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MKVTV--AFNQFG-PNRRVFIKRVS-----NVIIHGRRIDIFASKNFH---LQKNTIGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SNKEEELLVSQR-KKRPISPHLTVYEPEMSW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GRRISLKLTSGKIASRRVDGIIAAYQNPASW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MKATIQRVTSVFGVPRASVFVPRISTPFILHNYİSNĞ-RMDLF-SKEFHNGRVSKSDLWS
                                                                                                                                                                                                           LILLO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGRIU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TaxID=358;
                                                         TaxID=4690;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27;
                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                      145 AA; 15829 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
               Nellie white; TISSUE=Pollen
                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16.4%;
                                                                                                                                                                                                                                                                                                                                                          15.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                     Plasmid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16;
 G.;
                                                                                                                                                                                                                                                                                                                                           11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 66.5; DB Pred. No. 0.81; 6; Mismatches
                                                                                                                                                                                                                                                                                                                                            Score 62.5; DF Pred. No. 1.7; 11; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                       95A3D3D8E9560AA6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79
                                                                                                                                                                                                             434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A
                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                                                                                          DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 33;
                                                                                                                                                                                                                                                                                                                                               18;
                                                                                                                                                                                                                                                                                                                                                                                                           CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 196;
                                                                                                                                                                                                                                                                                                                                                                           Length 145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                       47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15;
                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7;
                                                                                                                                                                                                                                                                                                                                                 2
```

ᇍ

-!- SIMILARITY: BELONGS TO THE POLYSACCHARIDE LYASE FAMILY 1.

their non-reducing ends.

```
RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local &
                                                                                                                   Burgess W.H., Dionne C.A., Kaplow J.M., Mudd R., Friesel R., Zilberstein A., Schlessinger J., Jaye M.;
"Characterization and cDNA cloning of phospholipase C-gamma, a masubstrate for heparin-binding growth factor 1 (acidic fibroblast growth factor)-activated tyrosine kinase.";
Mol. Cell. Biol. 10:4770-4777(1990).
Deloukas P., Matthews L.H., Ashurst J., Burton J., Gilbert J.G.R., Jones M., Stavrides G., Almeida J.P., Babbage A.K., Bagguley C.L., Bailey J., Barlow K.F., Bates K.N., Beard L.M., Beare D.M., Beasley O.P., Bird C.P., Blakey S.E., Bridgeman A.M., Brown A.J.,
                                                                                                                                                                                                                           SEQUENCE FROM N.A.
TISSUE=Vein, and Brain;
MEDLINE=90355993; PubMed=2167438;
                                                                                                                                                                                                                                                                                                                                                                                        01-NOV-1990 (Rel. 16, Created)
01-NOV-1990 (Rel. 16, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase gamma 1
(EC 3.1.4.11) (PLC-gamma-1) (Phospholipase C-gamma-1) (PLC-II)
                                                                           MEDLINE=21638749; PubMed=11780052;
                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                         Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi, Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIG1_HUMAN
P19174;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MAMUH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACT SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lyase;
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                         PLCG1 OR PLC1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PIGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         296 MQVTVAFNHFÖRGLVQRMPRCRYGFVHVVNNDYTHWIMYAVGGSQH----PTIISQGNRY 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIR; S29612; S29612.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002022; Amb_allergen.
Pfam; PF00544; pec_lyase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MKVTVAFNQFGPN-----RRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRR- 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IAPHIEAAKEVTKR-----DYAEPAEW 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ISLKLTSGKIASRRVDGIIAAYQNPASW 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PF00544; pec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Z17328; CAA78976.1; -. L18911; AAA33398.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PR00807;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        68
97
434 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1
23
312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AMBALLERGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22
434
312
68
97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        48457 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PECTATE LYASE.
POTENTIAL.
N-LINKED (GLCNA
N-LINKED (GLCNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 62.5, DI
Pred. No. 5.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C1F3E30AD2BBD064 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1290 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (GLCNAC. ..) (POTENTIAL)
(GLCNAC. ..) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1; Length 434;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19;
                                                                                                                                                                       a major
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4;
```

닭 Ś

```
RA Buck D., Burrill W.D., Butler A.P., Carder C., Carter N.P.,
RA Chapman J.C., Clamp M., Clark G., Clark L.N., Clark S.V., Clee C.M.,
RA Clegg S., Cobley V.E., Collier R.E., Comor R.E., Corby N.R.,
RA Coulson A., Coville G.J., Deadman R., Dhami P.D., Dunn M.,
RA Coulson A., Coville G.J., Deadman R., Dhami P.D., Dunn M.,
RA Ellington A.G., Frankland J.A., Fraser A., French L., Garner P.,
RA Grafham D.V., Griffiths C., Griffiths M.N.D., Gwilliam R., Hall R.E.,
RA Hammond S., Harley J.L., Heath P.D., Ho S., Holden J.L., Howden P.J.,
RA Huckle B., Hunt A.R., Hunt S.E., Jekosch K., Johnson C.M., Johnson D.,
RA Kay M.P., Kimberley A.M., King A., Knights A., Laird G.K., Lawlor S.,
RA Lehvaslaiho M.H., Leversha M.A., Lloyd C., Lloyd D.M., Lovell J.D.,
RA Marsh V.L., Martin S.L., McConnachie L.J., McLay K., McMurray A.A.,
RA Milne S.A., Mistry D., Moore M.J.F., Mullikin J.C., Nickerson T.,
RA Oliver K., Parker A., Patel R., Pearce T.A.V., Peck A.I.,
RA Phillimore B.J.C.T., Prathalingam S.R., Plumb R.W., Ramsay H.,
RA Skuce C.D., Smith M.L., Soderlund C., Steward C.A., Sulston J.E.,
RA Swann R.M., Sycamore N., Taylor R., Tee L., Thomas D.W., Thorpe A.,
RA Wilming L., Wray P.W., Hubbard T., Durbin R.M., Bentley D.R., Beck S.,
Ph. Decare T., Whittaker P., Willey D.L., Williams L., Williams S.A.,
RA Wilming L., Wray P.W., Hubbard T., Durbin R.M., Bentley D.R., Beck S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -1- FUNCTION: PLC-GAMMA IS A MAJOR SUBSTRATE FOR HEPARIN-BINDING GROWTH FACTOR 1 (ACIDIC FIBROBLAST GROWTH FACTOR)-ACTIVATED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Solution structure of the SH3 domain of phospholipase C-gamma."; Cell 72:953-960(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Schlessinger J., Inagaki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=93208890; PubMed=7681365;
Kohda D., Hatanaka H., Odaka M., I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRUCTURE BY NMR OF SH3 DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nature 414:865-871(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "The DNA sequence and comparative analysis of human chromosome 20.";
SIMILARITY: CONTAINS 2 SH2 DOMAINS.
SIMILARITY: CONTAINS 1 SH3 DOMAIN.
SIMILARITY: CONTAINS 1 EF-HAND CALCIUM-BINDING DOMAIN.
                                                                                                                                                                                   SIMILARITY: DOMAINS X AND Y ARE CONSERVED IN DIFFERENT FORMS OF PLC AND ARE ESSENTIAL FOR CATALYTIC ACTIVITY.

SIMILARITY: CONTAINS 1 C2 DOMAIN.

SIMILARITY: CONTAINS 2 PH DOMAINS. THE SECOND ONE IS IN TWO
                                                                                                                                                                                                                                                                                                                                                                                                                        PTM: THE RECEPTOR-MEDIATED ACTIVATION OF PLC-GAMMA 1 AND 2 INVOLVES THEIR PHOSPHORYLATION BY TYROSINE KINASES IN RESPONSE TO LIGATION OF A VARIETY OF GROWTH FACTOR RECEPTORS AND IMMUNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATALYTIC ACTIVITY: 1-phosphatidyl-1D-myo-inositol 4,5-bisphosphate + H(2)0 = D-myo-inositol 1,4,5-trisphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COFACTOR:
                                                                                                                                                                          PARTS
                                                                                                                                                                                                                                                                                                                                                                                                    SYSTEM RECEPTORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYROSINE KINASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    glycero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Odaka M., Mandiyan V., Ullrich A.,
```

MIM; the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for contenting the statement is not removed. InterPro; entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch). This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss_Institute_of Bioinformatics and the EMBL outstation -InterPro; InterPro; InterPro; InterPro; senew; EMBL; M34667; AAA36452.1; European Bioinformatics Institute. 2HSP; 31-AUG-94. 1HSQ; 31-AUG-94. A36466; A36466 AL022394; HGNC:9065; PLCG1. ; IPR001849; PH. IPR001192; PI PLC. ; IPR000199; PI PLC Xdo ; IPR001711; PI PLC Y. ; IPR000980; SHZ. IPR002048; IPR000008; CAA18537.1; -. C2. EF-hand. Xdom. Usage commercia ö

```
RESULT 12
PAPE_ECOLI
ID PAPE ECOLI
AC PO8407;
OT 01-AUG-1988 (R.
T 01-AUG-1988 (R.
T 5-DEC-1988 (R.
PAPE.
                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                   밁
                                                                                                                                                                                  S
ROCCOSGREDITAC
                                                                                                                                   밁
                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                        PROSITE; PS00018; E
PROSITE; PS50001; S
PROSITE; PS50002; S
PROSITE; PS50003; E
PROSITE; PS50004; C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PRPRINTS; PRINTS;
                                                                                                                                                                                                                                                                                                                                                       CA BIND
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                     DOMAIN
ACT_SITE
ACT_SITE
MOD_RES
MOD_RES
                                                                                                                                                                                                                                                                                                              DOMAIN
DOMAIN
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam;
                                                                                                                                                                                                                                                     MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRINTS;
   Escherichia.
NCBI_TaxID=582;
                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                 Hydrolase; Lipid degradation; Transducer;
                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE;
                       Bacteria; Proteobacteria;
                                Escherichia coli
                                                                                                                                                                    883
                                                                                                                                   943 MERR 946
                                                                                                                                                   62 ASRR
                                                                                                                                                                                    5 VAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQ---KNTIGTGRRISLKLTSGKI 61
                                                                                                                                                                    IAIRPEGKNNRLFVFSISMASVAHWSLDVAADSQEELQDWVKKIREVAQTADARLTEGKI 942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PF00387; PI-PLC-Y; 1. PF00388; PI-PLC-X; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SM00252; SH2;
SM00326; SH3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SM00148; PLCXc; 1.
SM00149; PLCYc; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PD000093;
                                                                                                                                                                                                                                                                                                                                                                                          Calci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PR00452; SH3DOMAIN.
                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                         PS50008;
                                                protein
                                                                                                                                                    65
                                                                                                                                                                                                                                     1290 AA;
                                                        (Rel. 08, Created)
(Rel. 08, Last seq
(Rel. 37, Last ann
                                                                                                                                                                                                                                                                                                                                                                                        m-binding;
                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                        ; EF HAND; 1.
; SHZ; 2.
; SH3; 1.
; PH_DOMAIN; 2.
; PIFLC X DOM; PIFLC X DOM;
; PIFLC Y DOM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SH3; 1.
SH2; 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PHPHLIPASEC. SH2DOMAIN.
                                                papE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PI_PLC_Y;
                                                                                                                                                                                                                                                                               657
756
851
931
1070
1177
335
380
                                                                                                                                                                                                            15.4%;
28.1%;
                                                                                                                                                                                                                                     148531 MW;
                                                        Last sequence update)
Last annotation updat
                                                precursor.
                                                                                                                                                                                                                                                                                                                                                                                                          MAIN 2; 1.
X DOMAIN; 1.
Y DOMAIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                         Phosphorylation;
                      gamma subdivision;
                                                                                                                                                                                                    9;
                                                                                                                                                                                                                                                             PHOSPHORYLATION
PHOSPHORYLATION
PHOSPHORYLATION
                                                                                                                                                                                                                                                                                       C2 DOMAIN.
BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                      DOMAIN
PH 2 (F
SH2 1.
SH2 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                   2
                                                                                                                                                                                                           Score 62.5;
Pred. No. 19;
                                                                                                                                                                                                                                                                                                               PH 2 (SECOND PART)
DOMAIN Y.
                                                                                                                                                                                                                                                                                                                                                                          EF-HAND (POTENTIAL).
                                                                                                                                                                                                                                              I -> T (IN DBSNP:753381).
/FTId=VAR_011908.
                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                      AE05ABE2A18EDDAC CRC64;
                                                                                                                                                                                                                                                                                                                                                          (FIRST PART).
                                                                                          173
                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                          SH2 domain; SH3 domain; 3D-structure; Polymorphism.
                                                                                                                                                                                                                      BB
                                                                                                                                                                                                                     1;
                                                                                                                                                                                                     34;
                        Enterobacteriaceae;
                                                                                                                                                                                                                                                              (BY SIMILARITY).
(BY SIMILARITY).
(BY SIMILARITY).
                                                                                                                                                                                                                    Length 1290;
                                                                                                                                                                                                     ω
••
                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                      1;
```

```
밁
                                            ş
                                                                                                                       Matches
                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.

STRAIN=396;

MEDLINE=86149403; PubMed=2869489;

Lindberg F., Lund B., Normark S.;

Lindberg Froducts specifying adhesion of uropathogenic are minor components of pili.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Marklund B.-I., Tennent J.M., Garcia E., Hamers A., Baga M., Lindberg F., Gaastra W., Normark S.; "Horizontal gene transfer of the Escherichia coli pap and prs operons as a mechanism for the development of tissue-specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; X61238; CAA43556.1; --
EMBL; M13239; AAA24280.1; --
EMBL; M20146; AAA24288.1; --
EMBL; X61239; CAA43568.1; --
EMBL; X61239; CAA43568.1; --
EMBL; X61239; CAA63568.1; --
EMBL; X61238; CAA63568.1; --
EMBL; X61238; CAA63568.1; --
EMBL; X61239; CAA6568.1; 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and to commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=J96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=88169520; PubMed=2895103;
Lund B., Lindberg F., Normark S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Proc. Natl. Acad.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires a license agreement (See http:\overline{//www}.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               adhesive properties.";
Mol. Microbiol. 6:2225-2242(1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Structure and antigenic properties of the tip-located P pilus proteins of uropathogenic Escherichia coli.";
J. Bacteriol. 170:1887-1894(1988).
                                                                                                                                                                                                                                                                        SIGNAL
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=93023852; PubMed=1357526;
                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                             Fimbria;
                                                                                                                                                                                                                                                                                                                                                                PRINTS; PR01555;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                  Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                        nterPro; IPR004086; FimbrialPapE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        nterPro; IPR000259; Fimbrial.
   79
                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FUNCTION: FIMBRIAE (ALSO CALLED PILI), POLAR FILAMENTS RADIATING PROM THE SURFACE OF THE BACTERIUM TO A LENGTH OF 0.5-1.5 MICROMETERS AND NUMBERING 100-300 PER CELL, ENABLE BACTERIA TO COLONIZE THE EPITHELIUM OF SPECIFIC HOST ORGANS.
FUNCTION: THIS PROTEIN IS ONE OF THE MINOR COMPONENTS OF PILI.
PILI WITH A DEFECTIVE PAPE GENE WILL HAVE LOW ADHESIVE CAPACITY OR NONE; HOWEVER, THE BINDING PROPERTY OF THE WHOLE CELL WILL NOT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BE AFFECTED.

SUBCELLULAR LOCATION: SECRETED; TIP OF THE PILI.
SUBCELLULAR LOCATION: SECRETED; TIP OF THE PILI.
DISEASE: STRAINS OF E.COLI THAT CAUSE INFECTION OF THE HUMAN
DISEASE: STRAINS OF E.COLI THAT CAUSE INFECTION OF THE PROTEIN OF ABOUT 1000 HELICALLY ARRANGED SUBUNITS OF THE
CONSISTING OF ABOUT 1000 HELICALLY ARRANGED SUBUNITS OF THE
PROTEIN PAPA. THESE PILI MEDIATE BINDING TO DIGALACTOSIDE-
CONTAINING GLYCOLIPIDS PRESENT ON THE EPITHELIAL CELLS WHICH
                                                     1 MKVTV-AFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LINE THE URINARY TRACT.
MKVTITATNTY -- NNAILVQNTSNTSSDGLLVYLYNS -- -- NAGNIGTAITLGTPFTPG
                                                                                                                                                                                                                                                                                                                                                                                            PF00419; Fimbrial;
                                                                                                                       20;
                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                       Cell adhesion; Signal
                                                                                                                                                                                                                                           173 AA;
                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                   FIMBRIALPAPE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sci. U.S.A.
                                                                                                                                                                                                                                               18569 MW;
                                                                                                                                                   15.3%;
                                                                                                                          11;
                                                                                                                    Pred. No. 2.4,
1; Mismatches
                                                                                                                                                                                   Score 62;
                                                                                                                                                                                                                                                                              FIMBRIAL PROTEIN PAPE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83:1891-1895(1986).
                                                                                                                                                                                                                                                                                                          POTENTIAL.
                                                                                                                                                                                                                                               E27577D09C46A863 CRC64;
                                                                                                                                                                                   DB 1; Length 173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia coli
                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pili
                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NOT
                                                                        59
```

Ś

60

KIASRRVDGIIAAY 73

ω --

```
밁
132 KITGNNADKTISLH 145
```

```
Genome sequence of Thermotoga maritima.";

Nature 399:323-329(1999).

-!- FUNCTION: THE REACTION CATALYZED BY TOPOISOMERASES LEADS TO THE CONVERSION OF ONE TOPOLOGICAL ISOMER OF DNA TO ANOTHER.

-!- CATALYTIC ACTIVITY: ATP-independent breakage of single-stranded DNA, followed by passage and rejoining.

-!- SUBUNIT: MONOMER (BY SIMILARITY).

-!- MISCELLANEOUS: WHEN A TOPOISOMERASE TRANSIENTLY BREAKS A DNA BACKBONE BOND, IT SIMULTANEOUSLY FORMS A PROTEIN-DNA LINK, IN WHICH A TYROSYL OXYGEN IN THE ENZYME IS JOINED TO A DNA PHOSPHORUS AT ONE END OF THE ENZYME-SEVERED DNA STRAND.

-!- STMILABITY. BETANCE TO BEDEVATOR TOTHE T/TIT TOPOISOMERASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDDINE=99287316; PubMed=10360571;
Melson K.E., Clayton R.A., Gill S.R., Gwinn M.L., Dodson R.J.,
Haft D.H., Hickey E.K., Peterson J.D., Nelson W.C., Ketchum K.A.,
McDonald L., Utterback T.R., Malek J.A., Linher K.D., Garrett M.M.,
Stewart A.M., Cotton M.D., Pratt M.S., Phillips C.A., Richardson D.,
Heidelberg J., Sutton G.G., Fleischmann R.D., Bisen J.A., White O.,
Salzberg S.L., Smith H.O., Venter J.C., Fraser C.M.;
"Evidence for lateral gene transfer between Archaea and Bacteria from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN=MSB8 / DSM 3109;
MEDLINE=96138548; PubMed=8547314;
Mouthier de la Tour C., Kaltoum H., Portemer C., Confalonieri F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=MSB8 / DSM 3109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Biochim. Biophys. Acta 1264:279-283(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Cloning and sequencing of the gene coding for topoisomerase I from the extremely thermophilic eubacterium, Thermotoga maritima.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Huber R., Duguet M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Thermotogae; Thermotogae (class); Thermotogales; Thermotogaceae; Thermotoga.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
01-OCT-2001 (Rel. 40, Last annotation update)
DNA topoisomerase I (EC 5.99.1.2) (Omega-protein) (Relaxing enzyme)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPA OR TM0258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=2336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Thermotoga maritima.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P46799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    THEMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    THEMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sting enzyme) (Swivelase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             633 AA
```

SIMILARITY: BELONGS FAMILY. TO PROKARYOTIC TYPE I/III TOPOISOMERASE

use by non-profit institutions as long modified and this statement is not removed. entities requires a license agreement (See This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its or send an email to license@isb-sib.ch). moved. Usage by and for commercial (See http://www.isb-sib.ch/announce/ There are no restrictions in as its content is in

```
Pfam; PF01131; Topoisom bac; 1.
Pfam; PF01751; Toprim; 1.
PRINTS; PR00417; PRTPISMRASEI.
SMART; SM00437; TOPIAc; 1.
SMART; SM00436; TOPIBC; 1.
SMART; SM00436; TOPRIM; 1.
                                                                                                                                                      InterPro; IPR002936; DNAprim toprim.
InterPro; IPR003601; DNAtopI ATP bind.
InterPro; IPR003602; DNAtopI DNA_bind.
InterPro; IPR000380; Prok_tpisomrase.
                                                                                                                                                                                                                                                                                                                        EMBL; U27841; AAA68949.1; EMBL; AE001708; AAD35346.1
                                                                                                                                                                                                                                                                    HSSP; P06612; 1ECL.
TIGR; TM0258; -.
                                                                                                                                                                                                                                                                                                                   AAD35346.1; -.
```

```
RA Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Adams M.D., Celniker S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA Adams M.D., Celniker S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA Adams M.D., Celniker S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Borkova D., Batchan M.F., Bouck J., Bandaari D., Bolhakov S.,
RA Burtis K.C., Busam D.A., Butfer H., Cadieu E., Center A., Chandra I.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Bouck J., Bouck J., Botchan S., Dunkov B.C., Dunn P.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Posler C., Gabrielian A.E., Garg M.S., Gelbart M.M., Glasser K.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Harris N.L., Harvey D., Heiman T.J., Wei M.-H., Ibegwam C.,
RA Harris N.L., Harvey D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Kalp D., Lai Z.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Merkulov G., Milshina N.P., Moharny C.M., Nelson D.L.,
RA Melson D.R., Palson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STIVER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=20196006; PubMed=10731132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P41094; Q9V911;
01-FEB-1995 (Rel. 31, Created)
01-FEB-1995 (Rel. 31, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACT SITE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "The Drosophila melanogaster homolog of ribosomal protein S18.";
Gene 141:231-235(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Mandibulata; Pancrustacea; Hexapoda;
Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Garwood J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=94215909; PubMed=8163194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=Canton-S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RS18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A. (LONG ISOFORM).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RPS18 OR CG8900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     40S ribosomal protein S18.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DROME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=7227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Complete proteome.
ZN_FING 559
ACT_SITE 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIGREAMs; TIGRO1051; topA_bact; 1.
PROSITE; PS00396; TOPOISOMERASE I PROK; 1.
Isomerase; Topoisomerase; DNA-bInding; Zinc-finger; Metal-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155 LWR 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96 IARVINTLGRKNRI-VFSEITPRVIREAVKNPREIDMKKVRAQLARRILDRIVGYSLSPV 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18 IKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGKIASRRVDGIIAAYQNPA 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78 SWK 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DROME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  288
633 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lepesant J.-A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               580 C4-TYPE.
288 DNA CLEAVAGE (BY SIMILARITY)
A; 72694 MW; F7262A044060CFE9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15.1%; Score 61.5;
25.4%; Pred. No. 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 152 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 633;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
```

```
RESULT 15
Y12K_SMSV4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                닭
             SAFRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H., Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T., Spier E., Spradling A.C., Stapleton M., Strong R., Sun E., Sviiskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X., Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Williams S.M., Woodage T., Worley K.C., Mu D., Yang S., Yao Q.A., Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng I., Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O., Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C., "The genome sequence of Drosophila melanogaster."; Science 287:2185-2195(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Misra S., Crosby M.A., Matthews B.B., Bayraktaroglu L., Campbell K., Hradecky P., Huang Y., Kaminker J.S., Prochnik S.E., Smith C.D., Tupy J.L., Bergman C.M., Berman B.P., Carlson J.W., Celniker S.E., Clamp M.E., Drysdale R.A., Emmert D., Frise E., de Grey A.D.N.J., Harris N.L., Kronmiller B., Marshall B., Millburn G.H., Richter J., Russo S., Searle S.M.J., Smith E., Shu S., Smutniak F., Whitfield E.J., Yamada C., Ashburner M., Gelbart W.M., Rubin G.M., Mungall C.J., Lewis S.E.;
         Y12K SMSV4
P36289;
O1-JUN-1994
O1-JUN-1994
15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=Berkeley;
Misra S., Crosby M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- ALTERNATIVE PRODUCTS: 2 isoforms; a long form (shown here) and short form; are produced by alternative splicing.
-!- SIMILARITY: BELONGS TO THE S13P FAMILY OF RIBOSOMAL PROTEINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Annotation of Drosophila melanogaster genome.";
Submitted (MAY-2002) to the EMBL/GenBank/DDBJ databases.
-i- FUNCTION: INVOLVED IN THE BINDING OF FMET-TRNA AND, HENCE, IN THE INITIATION OF TRANSLATION (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; L2295; AAA28870.1; -.
EMBL; AE003792; AAM68401.1; -.
EMBL; AE003792; AAM68401.1; -.
EMBL; AE003792; AAM68402.1; -.
FlyBase; FBgn0010411; RpS18.
InterPro; ITR001892; Ribosomal S13.
Pfam; PF00416; Ribosomal S13; 1.
ProDom; PD001363; Ribosomal S13; 1.
PROSITE; PS00646; RIBOSOMAL S13; 1.
PROSITE; PS00646; RIBOSOMAL S13; 1.
ROSOMAL S13; 1.
PROSITE; PS00646; RIBOSOMAL S13; 1.
PROSITE; PS00646; PS00646; PS00646; PS00646; PS00646; PS00646; PS00646; PS00646; PS00646; PS006466; PS00646; PS006466; PS006466; PS006466; PS006466; PS0064666; PS0064666; PS0064666; PS0064666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for the modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REVISIONS, AND ALTERNATIVE SPLICING.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or send an email to license@isb-sib.ch).
                                                                                                                                                                  SMSV4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARSPLIC
                                                                                                                                                                                                                                                                                              57 GECTEEEVDKVVTIISNPLQYK 78
                                                                                                                                                                                                                                                                                                                                                         59 GKIASRRVDGIIAAYQNPASWK 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12 PNRRVFIKRVSNVIIHGRR---IDIFASKNFHLQKNTIGTGRR-----ISLKLTS 58
                                                                                                                                                                                                                                                                                                                                                                                                                   σ
                                                                                                                                                                                                                                                                                                                                                                                                                PEKFQHILRIMNTNIDGKKKVGIAMTAIK------GVGRKYSNIVLKKADVDLTKRA 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       152 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
(Rel. 29, Created)
(Rel. 29, Last sequence update)
(Rel. 37, Last annotation update)
                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17611 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15.0%; Score 61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TSS -> RQGGDHHLEPSÄVQGAQLVPQQAEGHHRWQVLAA
DLLQLGLEAA (IN SHORT ISOFORM).
MISSING (IN SHORT ISOFORM).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred.
                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       F52F9E8665B880EF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No.
                                                                                                                                     110 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1; Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  υ
-
```

```
밁
                                                                        Matches
                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Possible 12 kDa nucleic acid-binding protein.
San Miguel sea lion virus (serotype 4) (SMSV 4).
Viruses, ssRNA positive-strand viruses, no DNA stage; Caliciviridae;
                                                                                                                                                                                                                                                                                                                                                                                  "Nucleotide sequence of the capsid protein gene of two serotypes of San Miguel sea lion virus: identification of conserved and non-conserved amino acid sequences among calicivirus capsid proteins."; Virus Res. 24:211-222(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=36407;
                                                                                                                                               SEQUENCE
                                                                                                                                                                 EMBL; M87482; AAA16221.1; -. PIR; D48562; D48562.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=92410750; PubMed=1529644;
                                                                                                                                                                                                                                                                                                                                                                  -!- SIMILARITY: TO FELINE CALICIVIRUS 12 kDa PROTEIN.
10 FLNSVANAVVEGKKLDL-ASKGLQLKSRALDTER
                                    17 FIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGR 50
                                                                                                                                                 110 AA;
                                                                          Conservative
                                                                                                                                                 12566 MW; 14255D593827418E CRC64;
                                                                                          14.9%;
                                                                          10; Mismatches
                                                                                             Pred. No.
                                                                                                               Score 60.5;
         42
                                                                                                                 DB 1;
                                                                              12;
                                                                                                                 Length 110;
                                                                                Indels
                                                                                ۲.
                                                                                  1
```

Search completed: April 20, 2003, 13:07:25
Job time : 17.5789 secs

```
Copyright (c) 1993 - 2003 Compugen Ltd.

OM protein - protein search, using sw model

Run on: April 20, 2003, 12:57:30; Search time 32.4211 Seconds (without alignments)

237.215 Million cell updates/sec

Title: US-09-142-524D-1

Perfect score: 406

Sequence: 1 MKVTVAFNQFGPNRRVFIKR.....IASRRVDGIIAAYQNPASWK 80

Scoring table: BLOSUM62

Gapop 10.0, Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0

Maximum Match 10%

Maximum Match 10%

Maximum Match 10%

Maximum Match 100%

Listing first 45 summaries

Database: PIR 73:*

1: pirl:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred No is the number of routh first 45 summaries
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

118574321 1987	Result No.
	Score
	Query Match
514 514 514 374 374 374 374 377 152 152 152 152 394 64 464 469 391	Length
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	DB
	ID
	SUMMARIES
o dine tratione de la constante Description	
	1 99 24.4 514 2 S48730

45	44	43	42	4 1	40	39	. W	٠.	1 0		J (34	33	32	31		
59.5	59.5	60	60	60	60	60	60	60	σ σ	0.0	000	50.5	61	61.5	61.5	0.0	5
14.7	14.7	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.9		140	15.0	15.1	15.1	LO. 6	ם ח
263	254	844	725	627	410	295	275	219	154	856	1 1	110	173	633	369	7790	1
Ю	N	μ	N	N	N	Ν	2	N	N	N	4 0	J	N	N	N	٨.	•
A72349	D69545	TVMSVV	S60712	T00484	H90304	S60711	T28738	C84647	T27228	B81399	D#0000	カルロモケン	B27743	862737	E75620	CR3339	
conserved hypothet	ABC transporter A	transforming prote	band-6-protein - h	hypothetical prote	conserved hypothet	band-6-protein - h	hypothetical prote	probable synaptohr	ribosomal protein	probable periplasm	nypothetical nucle	TOTAL PROPERTY OF CO.	Dank fimbrial prot	ชั		hypothetical prote	

ALIGNMENTS

RESULT 2 JC2498 JC2498 Second major allergen Cry j II precursor - Japanese cedar C;Species: Cryptomeria japonica (Japanese cedar) C;Date: 16-Mar-1995 #sequence revision 26-May-1995 #text_change 21-Jul-2000 C;Accession: JC2498; PC2346; ĀG0147 R;Komlyama, N.; Sone, T.; Shimizu, K.; Morikubo, K.; Kino, K. Biochem. Biophys. Res. Commun. 201, 1021-1028, 1994 A;Title: cDNA cloning and expression of Cry j II, the second major allergen of Japanese A;Reference number: JC2498; MUID:94271186; PMID:8002972 A;Reference number: JC2498; MUID:94271186; PMID:8002972 A;Accession: JC2498 A;Molecule type: mRNA A;Residues: 1-514 <kom> A;Cross-references: DDBJ:D29772; NID:9506857; PIDN:BAA06172.1; PID:g506858 A;Accession: PC2346 A;Molecule type: protein A;Residues: 52-61 <ko2> R;Sakaguchi, M.; Inouye, S.; Taniai, M.; Ando, S.; Usui, M.; Matuhasi, T. A]Title: Identification of the second major allergen of Japanese cedar pollen. A;Reference number: A60147; MUID:90342988; PMID:2382797 A;Accession: A60147 A;Accession</ko2></kom>	RESULT 1 S48730 Cry j II protein - Japanese cedar C;Species: Cryptomeria japonica (Japanese cedar) C;Bpecies: Cryptomeria japonica (Japanese cedar) C;Bpecies: O7-May-1995 #sequence_revision 21-Jul-1995 #text_change 28-May-1999 C;Accession: S48730 R;Mamba, M.; Kurose, M.; Torigoe, K.; Hino, K.; Taniguchi, Y.; Fukuda, S.; Usui, M.; Kur FEBS Lett. 353, 124-128, 1994 A;Title: Molecular cloning of the second major allergen, Cry j II, from Japanese cedar p A;Reference number: S48730 A;Reference number: S48730 A;Reference number: S48730; MUID:95010777; PMID:7926035 A;Catus: preliminary A;Molecular type: mRNA A;Residues: 1-514 <nam> A;Residues: 1-514 <nam> A;Cross-references: GB:D37765; NID:g577695; PIDN:BAA07021.1; PID:d1007598; PID:g577696 Guery Match Best Local Similarity 100.0%; Pred. No. 0.00095; Matches 19; Conservative 0; Mismatches 0; Indels 0; Gaps 0; Qy 31 IDFASKNFHLOKNTIGTG 49 </nam></nam>

```
Biochem. Biophys. Res. Commun. 263, 166-17f, 1999
A;Title: Purification, identification, and cDNA cloning of Cha o
A;Reference number: JC7100; MUID:99417540; PMID:10486272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       polygalacturonase Cha o 2 - Japanese cypress)
(;Species: Chamaecypriss ob usa (Japanese cypress)
(;Species: Chamaecyprisus (Japanese cypress)
(;Date: 03.Dec-1999 #sequence_revision 03.Dec-1999 #text_change 11-May-2000
(;Accession: JC7100; PC7026
(;Accession: JC7100; PC7026
R;Accession: JC7100; PC7026
R;Access
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              F;429,460,472/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Sone, T.; Komiyama, N.; Shimizu, K.; Kusakabe, T.; Morikubo, K.; Kino, K. Biochem. Biophys. Res. Commun. 199, 619-625, 1994
A;Title: Cloning and sequencing of cDNA coding for Cry j I, a major allergen of Japanese A;Reference number: JC2123; MUID:94183234; PMID:8135802
A;Accession: JC2124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: protein A; Residues: 51-62 < MO2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-514 < MOR>
A; Accession: PC7026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C;Superfamily: pectate lyase LAT59
C;Keywords: glycoprotein; pollen
F;1-21/Domain: signal sequence #status predicted <SIG>
F;22-374/Product: major allergen Cry j I (clone pCCI-15) #status predicted <MAT>
F;158,191,293,354/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               major allergen Cry j I precursor (clone pCCI-15) - Japanese cedar
C;Species: Cryptomeria japonica (Japanese cedar)
C;Date: 14-Jul-1994 #sequence_revision 14-Jul-1994 #text_change 21-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Accession: JC7100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A,Cross-references: GB:D26545; NID:g493633; PIDN:BAA05543.1; PID:g493634
A,Experimental source: pollen
A,Note: the authors described carbohydrate binding site for residue 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: mRNA
A; Residues: 1-374 <SON>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C; Accession:
major allergen Cry j I precursor (clone pCCI-2-2) - Japanese cedar
C;Species: Cryptomeria japonica (Japanese cedar)
C;Date: 14-Jul*1994 #sequence_revision 14-Jul-1994 #text_change 21-Jul-2000
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            236 IDIFASKNFHLQKNTIGTG 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           236 IDIFASKRFHIEKCVIGTG 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31 IDIFASKNFHLOKNTIGTG 49
                                                                                                                                                                                                                                                                                                       234 MKVTVAFNOFGPNCGORMPRARYGLVH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31 IDIFASKNEHLOKNTIGTG 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                            1 MKVTVAFNQFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24.4%; 5-
100.0%; Prr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 99;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 71; DB 2
Pred. No. 1.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 74; DB 2
Pred. No. 0.87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.00095;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2; Length 374;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 514;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 514;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2, the second major all
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           830393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best
```

```
C;Accession: JC2123; PC2065
R;Sone, T.; Komiyama, N.; Shimizu, K.; Kusakabe, T.; Morikubo, K.; Kino, K.
Biochem. Biochys. Res. Commun. 199, 619-625, 1994
A;Title: Cloning and sequencing of cDNA coding for Cry j I, a major allergen of Japanese A;Reference number: JC2123; MUID:94183234; PMID:8135802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Molecule type: protein
A;Residues: 22-55;58-81;219-232;236-258;299-307;346-372 <802>
A;Residues: 22-55;58-81;219-232;236-258;299-307;346-372 <802>
A;Rote: the authors described carbohydrate binding site for residue 279
A;Superfamily: pectate lyase LAT59
C;Reywords: glycoprotein; pollen
F;T-21/Domain: signal sequence #status predicted <SIG>
F;22-374/Product: major allergen Cry j I (clone pCCI-2-2) #status predicted <MAT>
F;158,191,293,354/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Jun a 2 protein - mountain cedar
C;Species: Juniperus ashei (mountain cedar)
C;Date: 17-Nov-2000 #sequence_revision 17-Nov-2000 #text_change 17-Nov-2000
C;Accession: JC7366; PC7093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Accession: PC2065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Experimental source: pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: GB:D26544; NID:g493631; PIDN:BAA05542.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: mRNA
                                                                                                          C;Species: Homo sapiens (man)
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 21-Jul-2000
C;Accession: S30393; S68935
R;Chassin, D.; Bellet, D.; Koman, A.
Nucleic Acids Res. 21, 745, 1993
A;Title: The human homolog of ribosomal protein S18.
A;Reference number: S30393; MUID: 93181276; PMID: 8441687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Residues: 55-63 < YOZ>
C; Comment: This protein, a second major allergen o the polygalacturonase family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: protein A; Residues: 55-63 < YO2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: mRNA
A; Residues: 1-507 < YOK>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Biochem. Biophys. Res. Commun. 275, 195
A, Title: Purification, identification,
A, Reference number: JC7366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Accession: JC7366; PC7093
R;Yokoyama, M.; Miyahara, M.; Shimizu, K.; Kino, K.; Tsunoo, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C; Keywords:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: PC7093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Cross-references: GB:AJ404653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Accession: JC7366
A;Cross-references: EMBL:X69150; NID:g38422; PIDN:CAB56794.1; PID:g6006558
                            A; Molecule type: mRNA
A; Residues: 1-152 < CHA>
                                                                                                                                                                                                                                                                                                                            ribosomal protein S18, cytosolic - human
                                                                                           A; Accession: S30393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            234 MKVTVAFNQFGPNCGQRMPRARYGLVH 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      237 IDIFÁSKRFEIEKCTIGTG 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Match 17.5%; Score 71; DB 2; Length 374; Local Similarity 55.6%; Pred. No. 1.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31 IDIFASKNEHLQKNTIGTG 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MKVTVAFNOFGPNRRVFIKRVSNVIIH 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           glycoprotein; pollen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -374 <SON>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17.5%;
73.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 71; DB
Pred. No. 1.9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and cDNA cloning of Jun a 2, the second major all
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of mountain cedar pollen, which is invo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 507;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

```
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-152 <RES>
                                                                A;Title: The murine MHC encodes a mammalian homolog of bacterial ribosomal protein S13. A;Reference number: I57006; MUID:92182530; PMID:1543907 A;Accession: I76666
                                                                                                                                                                  ribosomal protein S18 [similarity] - mouse
N;Alternate names: ribosomal protein S13 [misnomer]
C;Species: Mus musculus (house mouse)
C;Date: 02-Aug-1996 #sequence_revision 02-Aug-1996 #text_change 03-Nov-2000
C;Accession: I76666; I57006
D;Accession: I76667; I57006
                                                                                                                                    R; MacMurray, A.J.; Shin, H.S. Mamm. Genome 2, 87-95, 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: GB:X57529; NID:9433446; PIDN:CAA40750.1; PID:9433447 A;Note: the protein is designated as ribosomal protein $18 according to comigration anal C;Superfamily: Escherichia coli ribosomal protein $13 C;Keywords: protein biosynthesis; ribosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ribosomal protein $18, cytosolic [validated] - rat C; Species: Rattus norvegicus (Norway rat) C; Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 C; Accession: JH0419
                                                                                                                                                                                                                                                                                                 I76666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R;Chan, Y.L.; Paz, V.; Wool, I.G.
Biochem. Biophys. Res. Commun. 178, 1212-1218, 1991
A;Title: The primary structure of rat ribosomal protein S18.
A;Reference number: JH0419; MUID:91337062; PMID:1872840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: mRNA
A; Residues: 1-152 < CHA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Map position: 6p21.3-6p21.3
C;Superfamily: Escherichia coli ribosomal protein S13
C;Keywords: blocked amino end; protein biosynthesis; ribosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Accession: JH0419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Vladimirov, S.N.; Ivanov, A.V.; Karpova, G.G.; Musolyamov, A.K.; Egorov, T.A.; Thiede,
Eur. J. Biochem. 239, 144-149, 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Gene: GDB: RPS18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Molecule type: protein
A;Residues: 'S',56-57,'X',59-64,'XX',67-69 <VLA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Accession: JH0419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 21-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IF. J. Biochem. 239, 144-149, 1996
Title: Characterization of the human small-ribosomal-subunit proteins by N-terminal an
Reference number: S68911; MUID:96305378; PMID:8706699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cross-references: GDB:138447; OMIM:180473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Accession: S68935
                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12 PNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRR-----ISLKLTSGKI 61
                                                                                                                                                                                                                                                                                                                                                                                                                          62 ASRRVDGIIAAYQNPASWK 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12 PNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRR-----ISLKLTSGKI 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60 TEDEVERVITIMONPROYK 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62 ASRRVDGIIAAYQNPASWK 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                TEDEVERVITIMONPROYK 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PEKFQHILRVLNTNIDGRRKIAFAITAIK---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PEKFOHILRVLNTNIDGRRKIAFAITAIK-----GVGRRYAHVVLRKADIDLTKRAGEL 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 70;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 70; DB 1; Length 152; Pred. No. 0.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               -GVGRRYAHVVLRKADIDLTKRAGEL 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1; Length 152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2,
                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T49115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
```

```
R;Takami, H.; Nakasone, K.; Takaki, Y.; Maeno, G.; Sasaki, R.; Masui, N.; Fuji, Nucleic Acids Res. 28, 4317-4331, 2000
A;Title: Complete genome sequence of the alkaliphilic bacterium Bacillus halodu.
                                                                                                                                                          C;Species: Bacillus halodurans
C;Date: 01-Dec-2000 #sequence_revision 01-Dec-2000 #text_change 17-May-2002
C;Accession: F83794
                                                                 A; Reference number: A83650; MUID: 20512582;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R;Bevan, M.; Wedler, H.; Wambutt, R.; Bancrosubmitted to the Protein Sequence Database, A;Reference number: Z25016
A;Accession: T49115
A; Molecule type: DNA
                   A; Status: preliminary
                                             A; Accession: F83794
                                                                                                                                                                                                                    ABC transporter (ATP-binding protein) BH1158 [imported] - Bacillus halodurans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Superfamily: pectate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Map position:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Gene: ATSP:AT4g22080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: EMBL.AL022140; GSPDB:GN00062; ATSP:AT4g22080
A;Experimental source: cultivar Columbia; BAC clone F1N20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Status: preliminary
A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pectate lyase like protein - Arabidopsis thaliana
N;Alternate names: protein AT4g22080
C;Species: Arabidopsis thaliana (mouse-ear cress)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Introns: 1/3; C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Cross-references: GB:M76762; NID:g198577; PIDN:AAA16796.1; PID:g198578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-103, 'H', 105-152 <RE2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross-references: GB:M76763; NID:g198579; PIDN:AAA16795.1; PID:g198580 A;Acctession: I57006
A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Gene: Ke-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;Introns: 240/3; 275/2; 321/3; Superfamily: pectate lyase LAT59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;Residues: 1-394 <BEV>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Date: 02-Jun-2000 #sequence_revision 02-Jun-2000 #text_change 02-Sep-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                          316 ------KSNSKEVTKREVKG 329
                                                                                                                                                                                                                                                                                                                                                                                                                            256 MKVTVAFNHFGPGLVERMPRVRRGYAHVANNRYDKWIMYAIGGSADPTIFSEGNYFIASD 315
                                                                                                                                                                                                                                                                                                                                                                                          45 TIGTGRRISLKLTSGKIASRRVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MKVTVAFNQFGPNRRVFIKRVSNVIIH--GRRID-----IFASKNFHLQKN 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60 TEDEVERVÍTIMÓNPROYK 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PEKFQHILRVLNTNIDGRRKIAFAITAIK-----GVGRRYAHVVLRKADIDLTKRAGEL 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ASRRVDGIIAAYONPASWK 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRR-----ISLKLTSGKI 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1/3; 34/3; 97/3; 120/2
lly: Escherichia coli ribosomal protein S13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16.7%;
28.6%;
                                                                             sequence of the alkaliphilic bacterium Bacillus halodurans and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 68;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R.; Bancroft,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 70; DB 2; Length 152; Pred. No. 0.68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                 PMID:11058132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oft, I.; Mewes, H.W.; Rudd, S.; Lemcke,
May 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 2; Length 394;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ψ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2
                                                                                                                                                                                                                      (strain C-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۲.
```

1-674 <STO>

```
A;Cross-references: GB:AP001511; GB:BA000004; NID:g10173727; PIDN:BAB04877.1; GSPDB:GN0QA; A;Experimental source: strain C-125 C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C; Access
R; Hunt,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            probable membrane protein YMR118c - yeast (Saccharomyces cerevisiae)
N;Alternate names: hypothetical protein YM9718.17c
C;Species: Saccharomyces cerevisiae
C;Date: 08-Uul-1995 #sequence_revision 19-Oct-1995 #text_change 19-Apr-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Superfamily: unassigned ATP-binding cassette proteins; ATP-binding cassette homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Reference number: $54510
A; Accession: $54580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C;ACCession: S54580
R;Hunt, S.; Bowman, S.
submitted to the EMBL Data Library, May 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S54580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 12
                                                                                                                                                                                                                                                                                        sensory transduction histidine kinase sll1590 - Synechocystis sp. N;Alternate names: protein sll1590 C;Species: Synechocystis sp. A;Variety: PCC 6803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F;179-195/Domain: transmembrane #status predicted <TM2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Map position: 13R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Gene: MIPS: YMR118c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Experimental source: strain AB972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Residues: I-196 <HUN>
A;Cross-references: EMBL:Z49702; NID:g817859; PID:g817878; GSPDB:GN00013; MIPS:YMR118c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: DNA
                                                                                                                                                          C;Accession: $75065
R;Kaneko, T.; Sato, S.; Kotani, H.; Tanaka, A.; Asamizu, E.; Nakamura, Y.; Miyajima, N.; R;Kaneko, T.; Sato, S.; Kotani, H.; Tanaka, A.; Wada, T.; Watanabe, A.; Yamada, M.; Yasudeo, K.; Okumura, S.; Shimpo, S.; Takeuchi, C.; Wada, T.; Watanabe, A.; Yamada, M.; Yasude DNA Res. 3, 109-136, 1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Cross-references: SGD:S0004724
A;Accession: S75965
A;Status: nucleic acid sequence not shown; translation not shown A;Nolecule type: DNA
A;Residues: 1-350 <KAN>
                                                                                                                                                                                                                                               C;Date: 25-Apr-1997 #sequence_revision 25-Apr-1997 #text_change 08-Oct-1999 C;Accession: S75065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮍
                                                                                                 A; Reference number: S74322; MUID: 97061201; PMID: 8905231
                                                                                                                                                \mathtt{a}_iTitle: Sequence analysis of the genome of the unicellular cyanobacterium Synechocysti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Keywords: transmembrane protein;88-114/Domain: transmembrane #status predicted <TM1>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        208 VVSR 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158 LMVVASFFQYG--QRFYLQKAANRIIQRLRIDLEN----HLSRLPV----RFFDNMFAGK 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 IASR 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59 SNKEEELLVSOR-KKRPISPHLTVYEPEMSW 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          49 GRRISLKLTSGKIASRRVDGIIAAYQNPASW 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BH1158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MKVTV--AFNQFG-PNRRVFIKRVS-----NVIIHGRRIDIFASKNFH---LQKNTIGT 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MKATIORVTSVFGVPRASVFVPRISTPFILHNYISNG-RMDLF-SKEFHNGRVSKSDLWS 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           16.5%; Score 67; DB 2; Length 674; 29.7%; Pred. No. 7.9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 66.5;
Pred. No. 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               33; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15;
                                                                                                                                                                                                                                                                                                                                                                                (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7;
                                                                                                                                                                                                                                                                                                                                                                                6803)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A,Start codon: GTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Map position: 4
A;Introns: 240/3; 275/2; 321/3
C;Superfamily: pectate lyase LAT59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      T49116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-394 <BEV>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Reference number: Z25016
A; Accession: T49116
                                                                                                                                                                                                                                                                                                R;Kuroda, M.; Ohta, T.; Uchiyama, I.; Baba, T.; Yuzawa, H.; Kobayashi, I.; Cui, L.; ma, A.; Mizutani-Ui, Y.; Kobayashi, N.; Sawano, T.; Inoue, R.; Kaito, C.; Sekimizu, C.; Shiba, T.; Hattori, M.; Ogasawara, N.; Hayashi, H.; Hiramatsu, K. Lancet 357, 1225-1240, 2001
A;Title: Whole genome sequencing of meticillin-resistant Stapylococcus aureus.
A;Reference number: A89758; MUID:21311952; PMID:11418146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Gene: ATSP:AT4g22090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        conserved hypothetical protein SA0553 [imported] - Staphylococcus aureus (strain N315)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F89828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                     A,Cross-references: GB:BA000018; PID:g13700488; PIDN:BAB41785.1; GSPDB:GN00149
A,Experimental source: strain N315
                                                                                                                                                                                                        A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-464 <KUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Accession: F89828
                                                                                                            A;Gene: SA0553
                                                                                                                                                                                                                                                                                A;Accession: F89828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Species: Staphylococcus aureus;
Date: 10-May-2001 #sequence_revision 10-May-2001 #text_change 22-Oct-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                     Genetics:
       Matches 26;
                                    Best Local
                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 Similarity
17; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KSYSKEVTKREVKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16.3%;
                                    16.3%;
                  9
                                    Score 66; DB
Pred. No. 6.9;
```

Mismatches

28;

Indels

28;

Gaps

ت.

DB 2; Length 464;

```
A;Cross-references: EMBL:D90910; GB:AB001339; NID:g1652956; PIDN:BAA17927.1; PID:d101866
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, June 1996
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Jun-2000 #sequence_revision 02-Jun-2000 #text_change 18-Aug-2000
C;Accession: T49116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pectate lyase like protein - Arabidopsis thaliana N,Alternate names: protein AT4g22090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R;Beyan, M.; Wedler, H.; Wambutt, R.; Bancroft, I.; Mewes, H.W.; Rudd, S.; Lemcke, K.; submitted to the Protein Sequence Database, May 2000
                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: EMBL:AL022140; GSPDB:GN00062; ATSP:AT4g22090
A;Experimental source: cultivar Columbia; BAC clone F1N20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       246 QRVFNNLITNAINHSPRGRKVEISLTSKNNHFQVQIVDEGRGI 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14 RRVFIKRVSNVIIH---GRRIDI-FASKNFHLQKNTIGTGRRI 52
                                                                                         256 MKVTVAFNHFGPGLVERMPRVRRGYAHVANNRYDKWIMYAIGGSADPTIFSEGNYFIASD 315
                                         45 TIGTGRRISLKLTSGKIASRRVDG 68
                                                                                                                                           1 MKVTVAFNQFGPNRRVFIKRVSNVIIH--GRRID--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7; Mismatches
                                                                                                                                                                                            7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 66; DB
Pred. No. 5.1;
                                                                                                                                                                                                                       Score 66; I
Pred. No. 5.
329
                                                                                                                                                                                                                                                 BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                              2
                                                                                                                                                                                            27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15; Indels
                                                                                                                                                                                                                                                 Length 394;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 350
                                                                                                                                                -----IFASKNFHLQKN 44
                                                                                                                                                                                                  26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2
                                                                                                                                                                                                    ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3
```

•			
		•	
		1	
	,		
	•		
h			
5			

```
The scores below are sorted by initial score. Significance is calculated based on initial score.
     Sequence Name
                                                                                                                             Number of residues:
Number of sequences
Number of scores abo
                                                                                                                                                                                                                              Scores:
                                                                                                                                                                                                                                                                                          Gap size penalty
Cutoff score
                                                                                                                                                                                           Times:
                                                                                                                                                                                                                                                                           Randomization group
                                                                                                                                                                                                                                                                                                                Gap penalty
                                                                                                                                                                                                                                                                                                                              Similarity matrix Mismatch penalty
                                                                                                                                                                                                                                                                                                                                                                                                        STDEV
                                                                                                                                                                                                                                                                                                                                                                                                                                           SHUZHCOHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   чo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Number of scores above cutoff:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query sequence being compared:US-09-142-524D-97 (1-15)
Number of sequences searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SCORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Results file us-09-142-524d-97.res made by jdelaval on Wed 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FastDB -
                                         100% similar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       50-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Results of the initial comparison of US-09-142-524D-97 (1-15) with:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IntelliGenetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               File : 09142524.pep
                                                                                                                                                                                                                                                                                                                           penalty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fast Pairwise Comparison of Sequences
                                                                                                                             scores above cutoff:
                                                                                                                                         sequences searched:
                                        sequences to the
   Description
                                                                                                                                                                          CPU
00:00:00.00
                                                                                                                                                                                                                                                                                                                                       Unitary
                                                                                                                                                                                                                Mean
15
                                                                                                                                                                                                                                                                             0.05
0
                                                                                                                                                                                                                                                  SEARCH STATISTICS
                                                                                                                                                                                                                                                                                                                                                                PARAMETERS
                                        query sequence were found:
                                                                                                                                                                                                                                                                                                              Window size
                                                                                                                                                                                                                                                                                                                          Joining penalty
                                                                                                                                                                                                                                                                                                                                       K-tuple
                                                                                                                                                                                                               Median
16
                                                                                                                            ωw
                                                                                                                                                                                                             Standard Deviation 0.00
                                                                                                                                                                        Total Elapsed 00:00:00:00.00
 Init. Opt.
Length Score Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Apr 103 17:47:55-PDT.
                                                                                                                                                                                                                                                                                                             20
15
Sig. Frame
```

```
Initial Score
Residue Identity

    US-09-142-524D-97 (1-15)
    US-09-142-524D-2 Sequence 2, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Initial Score
Residue Identity
                                                                                                                                                                               SEQ ID NO 2
                                                                                                                                                                                                             APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 2, Application US/09142524D GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. US-09-142-524D-3 Sequence
2. US-09-142-524D-2 Sequence
3. US-09-142-524D-1 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 3, Application US/09142524D
                                                                                                                                                                                                  NUMBER OF SEQ ID NOS: 174
SOFTWARE: PatentIn version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/142,524D CURRENT FILING DATE: 1998-09-09 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR FILING DATE: 1997-03-10 NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Dairiki, Kazuo
                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Sone, Toshio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic DiseaseILE REFERENCE: SPO-103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                LENGTH: 105
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-142-524D-97 (1-15)
                                                                                                                          ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM: Cryptomeria japonica
MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR
10 20 30 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-142-524D-3 Sequence 3, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 134
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RPLWIIFSGNMNIKLKMFMYIAGYKTFDGRRAEVSYVHVNGAKFIRRÝDĠÍÍÁÁÝÓNÞÁŚWK
80 90 100 110 120 130 X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MKVTVAFNQPGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR 10 20 30 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                                                                                                                                                                PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                         Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                                                                                            Kume, Akinori
Dairiki, Kazuo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         u 11 tt
                                                     15
100%
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100%
                                                     Conservative Substitutions
                                                                          Optimized Score = Matches =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Optimized Score
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 e 3, Application (e 2, Application (e 1, Application (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qqq
                                                                      15
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          vpgiiaayonpaswk (97)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134
105
80
                                                                      Significance
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Significance =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.00
                                                   00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   000
```

```
Sequence 1, Application US/09142524D
GENERAL INFORMATION:
APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Kume, Akinori
APPLICANT: Kino, Kazuo
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
NUMBER OF SEQ ID NOS: 174
SOFTWARE: PatentIn version 3.1
SEQ ID NO 1
LENGTH: 80
TYPE: PRT
ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                             Initial Score =
Residue Identity =
Gaps =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3. US-09-142-524D-97 (1-15)
US-09-142-524D-1 Sequence 1, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10 X
YQNPASWK
|||||||
YQNPASWK
                                                                                                                         MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGKIASRRVDGIIAA 10 20 30 40 50 60 X 70
                                                                                                                                                                                                                                                15 Optimized Score = 15
100% Matches = 15
0 Conservative Substitutions
                                                                                                                                                                                                                                             15 Significance = 0.00
15 Mismatches = 0
ions = 0
```

```
SCORE 0 STDEV -1
                                               2 100% similar sequences to the query sequence were found:
                                                                                                The scores below are sorted by initial score. Significance is calculated based on initial score.
                                                                                                                                                                Number of residues:
Number of sequences searched:
Number of scores above cutoff:
      Sequence Name
                                                                                                                                                                                                                                                                                                    Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Times:
                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatch
                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity matrix
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Overy sequence being compared: US-09-142-524D-100 (1-15)
Number of sequences searched:
3
Number of scores above cutoff:
                                                                                                                                                                                                                                                                                                                                                               Randomization group
                                                                                                                                                                                                                                                                                                                                                                                 Cutoff score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Results file us-09-142-524d-100.res made by jdelaval on Wed 23 Apr 103 17:48:12-PDT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FastDB - Fast Pairwise Comparison of Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100-
                                                                                                                                                                                                                                                                                                                                                                                                              penalty
                                                                                                                                                                                                                                                                                                                                                                                               size penalty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         50-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Results of the initial comparison of US-09-142-524D-100 (1-15) with: File : 09142524 pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IntelliGenetics
                                                                                                                                                                                                                                                                                                                                                                                                                             penalty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 scores above cutoff:
        Description
                                                                                                                                                                                                                              CPU
00:00:00.00
                                                                                                                                                                                                                                                                                                                                                                                                                                           Unitary
                                                                                                                                                                                                                                                                               Mean
11
                                                                                                                                                                                                                                                                                                                                                                                          0.05
                                                                                                                                                                                                                                                                                                                           SEARCH STATISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PARAMETERS
                                                                                                                                                                                                                                                                                                                                                                                                         Joining penalty Window size
                                                                                                                                                                                                                                                                                                                                                                                                                                         K-tuple
                                                                                                                                                                                                                                                                                              Median
                                                                                                                                                                                                                                                                              Standard Deviation 6.93
                                                                                                                                                                                                                           Total Elapsed
 Init. Opt.
Length Score Score
                                                                                                                                                                                                                                                                                                                                                                                                           20
15
Sig. Frame
```

```
    US-09-142-524D-100 (1-15)
    US-09-142-524D-2 Sequence 2, Application US/09142524D

    US-09-142-524D-100 (1-15)
    US-09-142-524D-3 Sequence 3, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Residue Identity =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Initial Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The list of other best scores is:
                                                               SOFTWARE: PatentIn version 3.1 SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence Name
                                                                                                                                                                                                                                                                                                                                                                        Sequence 2, Application US/09142524D GENERAL INFORMATION:
                                                                                                                   TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Disease FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILLING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR PILLING DATE: 1997-03-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                             APPLICANT: Sone, Toshio APPLICANT: Kume, Akino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/142,524D CURRENT FILING DATE: 1998-09-09 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR FILING DATE: 1997-03-10 NUMBER OF SEQ ID NOS: 174 SOFTWARE: Patentin version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                              NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                             APPLICANT: Kume, Akinori
APPLICANT: Dairiki, Kazuo
APPLICANT: Iwama, Akiko
APPLICANT: Kino, Kohsuke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Dairiki, Kazuo
ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  **** 1 standard deviation below mean **** 3. US-09-142-524D-1 Sequence 1, Application U \phantom{0} 80 \phantom{0} 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. US-09-142-524D-3 Sequence 3, Application U 2. US-09-142-524D-2 Sequence 2, Application U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 134
TYPE: PRT
                                               ENGTH: 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNPASWK
80 90 100 110 120 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MKVTVAFNQEGENRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGETLMGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15
100%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Optimized Score = Matches =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length Score Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           134
105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Significance =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NNRIWLOFAKLTGET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -1.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sig. Frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           00
```

```
Sequence 1, Application US/09142524D
GENERAL INFORMATION:
APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Kume, Akinori
APPLICANT: Iwama, Akinori
APPLICANT: Kino, Kohauke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR APPLICATION NUMBER: PCT/JP97/00740
SOFTWARE: PatentIn version 3.1
SEQ ID NO: 174
SOFTWARE: PatentIn version 3.1
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Initial Score = Residue Identity =
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Initial Score = Residue Identity = Gaps = =

    US-09-142-524D-100 (1-15)
    US-09-142-524D-1 Sequence 1, Application US/09142524D

IAAYQNPASWK
70 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR
10 20 30 40 50 X 60 70
                                                                                                                                                  MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISL---KLTSGKIASRRVDGI
10 20 30 40 50 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK
80 90 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15
100*
                                                                                                                                                                                                                                                                                                                                                                                                                                            3 Optimized Score = 5
40% Matches = 6
3 Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Optimized Score = 15
Matches = 15
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15 Significance = 0.58
15 Mismatches = 0
ions = 0
                                                                                                                                                                                                                                                                                          NNRIWLQFAKLTGFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Significance = -1.15
Mismatches = 6
9 = 0
```

> 0 < 0 | O IntelliGenetics > 0 <

FastDB - Fast Pairwise Comparison of Sequences Release 5.4

Results file us-09-142-524d-101.res made by jdelaval on Wed 23 Apr 103 17:48:31-ppT.

```
Similarity matrix
Mismatch penalty
Gap penalty
Gap size penalty
Cutoff score
A 100% identical sequence to the query sequence was not found.
                         The scores below are sorted by initial score. Significance is calculated based on initial score.
                                                                      Number of residues:
Number of sequences searched:
Number of scores above cutoff:
                                                                                                                                                                                                                                                                                                                                  SCORE
                                                                                                                                  Times:
                                                                                                                                                                    Scores:
                                                                                                                                                                                                             Randomization group
                                                                                                                                                                                                                                                                                                                                                                      O H O Z H C O H O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Z H B Z C Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ouery sequence being compared:US-09-142-524D-101 (1-15). Number of sequences searched:
3 Number of scores above cutoff:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    50-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Results of the initial comparison of US-09-142-524D-101 (1-15) with: File : 09142524 pep
                                                                                                                    CPU
00:00:00.00
                                                                                                                                                                                                              Unitary
1.00
0.05
0
                                                                                                                                                       Mean
9
                                                                                                                                                                                       SEARCH STATISTICS
                                                                                                                                                                                                                                                                                              PARAMETERS
                                                                                                                                                                                                                                                K-tuple
Joining penalty
Window size
                                                                                                                                                     Median
4
                                                                                                                                                    Standard Deviation 5.77
                                                                                                                 Total Elapsed 00:00:00:00.00
                                                                                                                                                                                                                                               20
15
```

The list of best scores is:

Initial Score

13

Optimized Score =

13 Significance = 0.69

GENERAL INFORMATION: APPLICANT: Sone, Toshio APPLICANT: Kume, Akinori APPLICANT: Kume, Akinori APPLICANT: Dairiki, Kazuo APPLICANT: Lorinki, Kazuo APPLICANT: Lorinki, Kazuo APPLICANT: Iwama, Akiko APPLICANT: Iwama, Akiko APPLICANT: Iwama, Akiko APPLICANT: Iwama, Ikiko APPLICANT: Iwama, Ikiko APPLICANT: Iwama, Ikiko APPLICANT: Iwama, Ikiko APPLICANT: Spo-103 CURRENT FILLING DATE: 1988-09-09 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR APPLICATION NOS: 174 SOFTWARE: Patentin version 3.1 SEQ ID NO 3 LENGTH: 134 TYPE: PRT ORGANISM: Cryptomeria japonica	142-524D-101 (1- 142-524D-3 Seque	RLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK X 80 90 100	G ×	X 10 LQFAKLTGFTIMGK	Initial Score = 13 Optimized Score = 13 Significance = 0.69 Residue Identity = 86% Matches = 13 Mismatches = 2 Gaps = 0 Conservative Substitutions = 0	APPLICANT: Kume, Akinori APPLICANT: Dairiki, Kazuo APPLICANT: Iwama, Akiko APPLICANT: Iwama, Akiko APPLICANT: Kino, Kohsuke TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas FILE REFERENCE: SPO-103 CURRENT APPLICATION NUMBER: US/09/142,524D CURRENT FILING DATE: 1998-09-09 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR FILING DATE: 1997-03-10 VNUMBER OF SEQ ID NOS: 174 SQC ID NO 2 LENGTH: 105 TYPE: PRT ORGANISM: Cryptomeria japonica		1. US-09-142-524D-101 (1-15) US-09-142-524D-2 Sequence 2, Application US/09142524D	1. US-09-142-524D-2 Sequence 2, Application U 105 13 13 0.69 0 2. US-09-142-524D-3 Sequence 3, Application U 134 13 13 0.69 0 **** 1 standard deviation below mean **** 3. US-09-142-524D-1 Sequence 1, Application U 80 3 4 -1.04 0	ripti
---	--------------------------------------	--	-----	---------------------	--	---	--	---	---	-------

```
Sequence 1, Application US/09142524D
GENERAL INFORMATION:
APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Kume, Akinori
APPLICANT: Ivama, Akinori
APPLICANT: Kino, Kobauke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR PILING DATE: 1997-03-10
NUMBER OF SEQ ID NOS: 174
SOFTWARE: Patentin version 3.1
SEQ ID NO 1
LENGTH: 80
TYPE: PRT
ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Residue Identity =
                                                                                                                                                                                              Initial Score = Residue Identity =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3. US-09-142-524D-101 (1-15)
US-09-142-524D-1 Sequence 1, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ດ 🛪
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFÅKLTGFTLMGR
10 20 30 40 50 60 70
                                                             MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLT----SGKIASRRVDG
10 20 30 40 50 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNPASWK X 80 90 100 110 120 130
IIAAYQNPASWK
70 80
                                                                                                                                                                                          3 Optimized Score = 4
33% Matches = 5
4 Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
$98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches = 13
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13 Mismatches
                                                                                                                                                                                                                   Significance = -1.04
Mismatches = 6
                                                                                                                          LOFAKLTGFTLMGKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOFAKLTGFTLMGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0 0
```

IntelliGenetics

Query sequence being compared: US-09-142-524D-120 Number of sequences searched:

(1-15)

Results file us-09-142-524d-120.res made by jdelaval on Wed 23 Apr 103 17:48:52-PDT.

FastDB - Fast Pairwise Comparison of Sequences

```
Number of scores above cutoff:
                                                                                                                                                                                                                                                                                                                                                                                                            SHOKEGOES
                                                                                                                                                                                                                                                                       Similarity matrix
Mismatch penalty
Gap penalty
                                                                                                                                                                                                                                                                                                                                                                     STDEV
                                                                                                                                                                                                                                                                                                                                                                                 SCORE 0
                                                                            Number of residues:
Number of sequences searched:
Number of scores above cutoff:
                                                                                                                                                                                 Scores:
A 100% identical sequence to the query sequence was not found.
                       The scores below are sorted by initial score. Significance is calculated based on initial score.
                                                                                                                                           Times:
                                                                                                                                                                                                                                   Randomization group
                                                                                                                                                                                                                                                  Cutoff score
                                                                                                                                                                                                                                                            Gap size penalty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     50-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Results of the initial comparison of US-09-142-524D-120 (1-15) with: File : 09142524.pep
                                                                                                                                00:00:00.00
                                                                                                                                                                                                                                                                                                     Unitary
                                                                                                                                                                      Mean
14
                                                                                                                                                                                                                                                                0.00
                                                                                                                                                                                                                                                                                                                               PARAMETERS
                                                                                                                                                                                                           SEARCH STATISTICS
                                                                                                                                                                                                                                                                            Window size
                                                                                                                                                                                                                                                                                       Joining penalty
                                                                                                                                                                                                                                                                                                     K-tuple
                                                                                                                                                                       Median
15
                                                                                                       319
                                                                                                                                                                                    Standard Deviation
                                                                                                                                  Total Elapsed 00:00:00:00.00
                                                                                                                                                                         0.00
                                                                                                                                                                                                                                                                               20
15
```

The list of best scores is:

10

```
    US-09-142-524D-120 (1-15)
    US-09-142-524D-1 Sequence 1, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence Name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Initial Score = Residue Identity =
                                                                                                SOFTWALL SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
Gaps
              Initial Score = Residue Identity =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Iwama, Akiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
                                                                                                                                                                                                                                                                                                                                                            Sequence 2, Application US/09142524D GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS: 174
SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Sone, Toshio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. US-09-142-524D-1 Sequence 1,
2. US-09-142-524D-2 Sequence 2,
3. US-09-142-524D-3 Sequence 3,
                                                                                                                                                                                                    TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
                                                                                                                                                   PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR FILING DATE: 1997-03-10 NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                           APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-142-524D-120 (1-15)
                                                                                                                                    SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                               US-09-142-524D-2 Sequence 2, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ENGTH: 80
                                                                                   TYPE: PRT
                                                                 ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kume, Akinori
Dairiki, Kazuo
                                                                                                                                                                                                                                                                          Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                           Dairiki, Kazuo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93%
                14
93%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Optimized Score =
                                    Optimized Score =
   Conservative Substitutions
                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               , Application U
, Application U
, Application U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length Score Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14
14
                     14
14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
105
134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Significance = Mismatches = =
                     Significance = Mismatches =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sig. Frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.00
0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.00
1
                                      0.00
```

```
APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Loaliki, Kazuo
APPLICANT: Dalriki, Kazuo
APPLICANT: Iwama, Akiko
APPLICANT: Iwama, Akiko
APPLICANT: Iwama, Akiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
CURRENT SPECIATION NUMBER: US/09/142,524D
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION UNUMBER: PCT/JP97/00740
PRIOR APPLICATION UNUMBER: PCT/JP97/00740
SOPTWARE: Patentin version 3.1
LENGTH: 134
TYPE: PAT
ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                 Initial Score = Residue Identity = Gans =

    US-09-142-524D-120 (1-15)
    US-09-142-524D-3 Sequence 3, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 3, Application US/09142524D GENERAL INFORMATION:
RPLWIIFSGNMVIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNPASWK
80 90 100 110 120 130
                                                             MKVTVAENQEGENRRVFIKRVSNVIIHGRRİDİFASKNEHLQKNTIGTGRRWKNNRIWLQFAKLTGETLMGR
10 20 30 40 X 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK
80 90 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MKVTVAFNOFGÞNRRVFIKRVSNVIIHGRRÍÐÍFASKVFHLQKVTIGTGRRWKNNRIWLQFAKLTGFTLMGR
10 20 30 40 x 50 60 70
                                                                                                                                                                                                                                    14 Optimized Score = 93% Matches =
                                                                                                                                                                                                       0 Conservative Substitutions
                                                                                                                    X 10 X
GIDIFASKNFHLOKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GIDIFASKNFHLOKN
                                                                                                                                                                                                                             14 Significance = 14 Mismatches =
                                                                                                                                                                                                                                             0.00
                                                                                                                                                                                                     0 1
```

```
Query sequence being compared:US-09-142-524D-121 (1-15)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Results file us-09-142-524d-121.res made by jdelaval on Wed 23 Apr 103 17:49:11-PDT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Release 5.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FastDB -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Number of scores above cutoff:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SCORE 0
                                                                                                                                                                                                                                                                                                                                                     Gap size penalty
                                                                                                                                                                                                                                                                                                                                                                  Gap penalty
                                                                                                                                                                                                                                                                                                                                                                                  Mismatch penalty
                                                                                                                                                                                                                                                                                                                                                                                                Similarity matrix
                                                                                                                                         Number of residues:
Number of sequences
Number of scores abo
                                                                                                                                                                                                                                                               Scores:
                                                                                                                                                                                                                                                                                                                       Randomization group
                                                                                                                                                                                                                                                                                                                                     Cutoff score
                                                                                                                                                                                                                    Times:
                                    3 100% similar sequences to the query sequence were found:
                                                                               The scores below are sorted by initial score. Significance is calculated based on initial score.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Results of the initial comparison of US-09-142-524D-121 (1-15) with: File : 09142524.pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IntelliGenetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fast Pairwise Comparison of Sequences
                                                                                                                                          sequences searched:
scores above cutoff:
                                                                                                                                                                                                         00:00:00.00
                                                                                                                                                                                                                                                                                                                                                                                                     Unitary
                                                                                                                                                                                                                                                    Mean
15
                                                                                                                                                                                                                                                                                                                                                       1.00
                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                  PARAMETERS
                                                                                                                                                                                                                                                                                               SEARCH STATISTICS
                                                                                                                                                                                                                                                                                                                                                                       Joining penalty Window size
                                                                                                                                                                                                                                                                                                                                                                                                       K-tuple
                                                                                                                                                                              319
                                                                                                                                                                                                                                                                     Standard Deviation
                                                                                                                                                                                                            Total Elapsed
00:00:00.00
Init. Opt.
Length Score Score Sig. Frame
                                                                                                                                                                                                                                                                                                                                                                               20
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15
```

Sequence Name

Description

```
1. US-09-142-524D-121 (1-15)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Residue Identity =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 3, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Initial Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:

    US-09-142-524D-121 (1-15)
    US-09-142-524D-2 Sequence 2, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinor
APPLICANT: Dairiki, Kaz
APPLICANT: Iwama, Akiko
                                                                Initial Score = Residue Identity = Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. US-09-142-524D-3 Sequence 3, 2. US-09-142-524D-2 Sequence 2, 3. US-09-142-524D-1 Sequence 1,
                                                                                                                                                                      CURRENT PILLING DATE: U9/09/142,524D CURRENT FILLING DATE: 1998-09-09 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR FILING DATE: 1997-03-10 NUMBER OF SEQ ID NOS: 174 SOFTWARE: PatentIn version 3.1 SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 2, Application US/09142524D GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 174
SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-142-524D-3 Sequence 3, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Sone, Toshio APPLICANT: Kume, Akino:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 134
TYPE: PRT
                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR
                                                                                                                            ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNPASWK
                                                                                                                                                          ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kume, Akinori
Dairiki, Kazuo
Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                             105
                                                                                                                                                                                                                                                                                                                        Kume, Akinori
Dairiki, Kazuo
Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Akinori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100%
                                                                100%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15 Optimized Score =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                Optimized Score
                                                                Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Application U
Application U
Application U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ASKNEHLOKNTIGTG
ASKNEHLOKNTIGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134
105
.80
                                                                                                    15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Significance
Mismatches
                                                                                       Mismatches
                                                                                                     Significance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        o...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.00
0
                                                                                                         0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        000
```

```
APPLICANT: Sone, Toshio
APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Kume, Akinori
APPLICANT: Inaria, Akiko
APPLICANT: Inaria, Akiko
APPLICANT: Inaria, Akiko
APPLICANT: Inaria, Akiko
APPLICANT: Kino, Kohsuke
FILLE REFERENCE: SPO-103
CURRENT FILLING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: POT/JP97/00740
NUMBER OF SEQ ID NOS: 174
SEQ ID NO : 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ ID NO: 174
SEQ 
                                                                                                                                                                                                                                                                                                                                                                   Initial Score = Residue Identity =

    US-09-142-524D-121 (1-15)
    US-09-142-524D-1 Sequence 1, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/09142524D GENERAL INFORMATION:
                              MKVTVAENOFGENRRVEIKRVSNVIIHGRRIDIFASKNFHLOKNTIGTGRRISLKLTSGKIASRRVDGIIAA
10 20 30 X 40 50 60 70
YQNPASWK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RLKMEMYIAGYKTFDGRRVDGIIAAYQNPASWK
80 90 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR
10 20 30 X 40. 50 60 70
                                                                                                                                                                                                                                                                                            15 Optimized Score = 15
100% Matches = 15
0 Conservative Substitutions
                                                                                                                                                                       ASKNFHLOKNTIGTG
                                                                                                                                                                                                                                                                                                                           15 Significance = 15 Mismatches = ions
                                                                                                                                                                                                                                                                                                                                o.
o
```

```
A 100% identical sequence to the query sequence was not found.
                                    The scores below are sorted by initial score. Significance is calculated based on initial score.
                                                                                                        Number of residues:
Number of sequences searched:
Number of scores above cutoff:
                                                                                                                                                                                                    Times:
                                                                                                                                                                                                                                                                                                                                            Gap penalty
Gap size penalty
Cutoff score
                                                                                                                                                                                                                                                                                                                                                                                                 Similarity matrix Mismatch penalty
                                                                                                                                                                                                                                                         Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \<u>^</u>
\
\
\
\
\
                                                                                                                                                                                                                                                                                                                          Randomization group
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query sequence being compared:US-09-142-524D-131 (1-15)
Number of sequences searched:
3
Number of scores above cutoff:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STDEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SCORE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Results file us-09-142-524d-131.res made by jdelaval on Wed 23 Apr 103 17:49:28-PDT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FastDB -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Results of the initial comparison of US-09-142-524D-131 (1-15) with: File: 09142524.pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IntelliGenetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fast Pairwise Comparison of Sequences
                                                                                                                                                                                                                                                                                                                                                                                              penalty
                                                                                                                                                                              00:00:00.00
                                                                                                                                                                                                                                                                                                                                                                                                              Unitary
                                                                                                                                                                                                                                   Mean
6
                                                                                                                                                                                                                                                                                                                                                           1.00
                                                                                                                                                                                                                                                                                       SEARCH STATISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                 PARAMETERS
                                                                                                                                                                                                                                                                                                                                                                          Joining penalty Window size
                                                                                                                                                                                                                                                                                                                                                                                                              K-tuple
                                                                                                                                                                                                                                                Median
                                                                                                                                                                            Total Elapsed 00:00:00:00.00
                                                                                                                                                                                                                                              Standard Deviation
                                                                                                                                                                                                                                                                                                                                                                        20
15
```

The list of best scores is:

```
Initial Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                         Residue Identity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Residue Identity =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Initial Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence Name
                                                                                                                                                  SEQ ID NO 1
                                                                                                                                                    TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
NUMBER OF SEQ ID NOS: 174
SOFTWARE: Patentin version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 3, Application US/09142524D GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Dairiki, Kazu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Kume, Akinori
APPLICANT: Dairiki, Kazuo
APPLICANT: Ivama, Kiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                             LENGTH: 80
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-142-524D-131 (1-15)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 1:
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Sone, Toshio APPLICANT: Kume, Akinor
                                                                                 ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-142-524D-131 (1-15)
US-09-142-524D-3 Sequence 3, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. US-09-142-524D-3 Sequence 2, Application U 134 14
2. US-09-142-524D-1 Sequence 1, Application from mean ***
2. US-09-142-524D-1 Sequence 1, Application U 80 2
3. US-09-142-524D-2 Sequence 2, Application U 105 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-142-524D-1 Sequence 1, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVGYVHVNGAKFIRRVDGIIAAVQNPASWK 80 90 100 X 110 X 120 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR
10 20 30 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134
                                                                                                                                                                                                                                                                                                                                Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Description
      26%
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            93%
                                                                                                                                                                                                                                                                                                                                                                         Kazuo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
Conservative Substitutions
                       Optimized Score
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Optimized Score =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          X 10 X
SRAEVSYVHVNGAKF
                       B B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Init. Opt.
Length Score Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14
14
                   Significance = Mismatches =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Significance =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11
-0.58
11
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sig. Frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -0.58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -0.58
```

```
Sequence 2, Application US/09142524D
GENERAL INFORMATION:
APPLICANT: Sone, Toshio
APPLICANT: Sone, Akinori
APPLICANT: Kume, Akinori
APPLICANT: Iwama, Akinori
APPLICANT: Iwama, Akiko
APPLICANT: Kino, Kobeuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/UF97/00740
PRIOR FILING DATE: 1997-03-10
NUMBER OF SEQ ID NOS: 174
SOFTWARE: PatentIn version 3.1
SEQ ID NO 2
LENGTH: 105
TYPE: PRT
ORGANNISM: Cryptomeria japonica
                                                                                                                                                                                                                          Initial Score = Residue Identity =

    US-09-142-524D-131 (1-15)
    US-09-142-524D-2 Sequence 2, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YQNPASWK
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGKIASRRVDGIIAA 10 X 20 30 40 50 60 70
                                                                      MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLIGFTLMGR 10 X 20 30 40 50 60 70
RLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK
80 90 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X 10 X
SRAEVSYVHVNGAKF
                                                                                                                                             X 10 X
SRAEVSYVHVNGAKF
                                                                                                                                                                                                                    2 Optimized Score = 4
26% Matches = 4
0 Conservative Substitutions
                                                                                                                                                                                                                          4 Significance = -0.58
4 Mismatches = 11
ons = 0
```

```
A 100% identical sequence to the query sequence was not found.
                                    The scores below are sorted by initial score. Significance is calculated based on initial score.
                                                                                                        Number of residues:
Number of sequences searched:
Number of scores above cutoff:
                                                                                                                                                                                                   Times:
                                                                                                                                                                                                                                                                                                                                                                                    Similarity matrix Mismatch penalty
                                                                                                                                                                                                                                                     Scores:
                                                                                                                                                                                                                                                                                                                                                       Gap penalty
Gap size penalty
                                                                                                                                                                                                                                                                                                                                       Cutoff score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ×°°
°°
°°
                                                                                                                                                                                                                                                                                                                     Randomization group
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query sequence being compared:US-09-142-524D-152 (1-15)
Number of sequences searched:
3
Number of scores above cutoff:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FastDB -
Release 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Results file us-09-142-524d-152.res made by jdelaval on Wed 23 Apr 103 17:49:45-PDT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Results of the initial comparison of US-09-142-524D-152 (1-15) with: File : 09142524 pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IntelliGenetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fast Pairwise Comparison of Sequences
                                                                                                                                                                             00:00:00.00
                                                                                                                                                                                                                                                                                                                                                                                                        Unitary
                                                                                                                                                                                                                                Mean
6
                                                                                                                                                                                                 CPU
                                                                                                                                                                                                                                                                                                                                                       1.00
                                                                                                                                                                                                                                                                               SEARCH STATISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                        PARAMETERS
                                                                                                                                                                                                                                                                                                                                                                K-tuple
Joining penalty
Window size
                                                                                                                                                                                                                                              Median
                                                                                                                                                                         Total Elapsed 00:00:00:00.00
                                                                                                                                                                                                                                          Standard Deviation
                                                                                                                                                                                                                                                                                                                                                                  20
15
```

The list of best scores is:

```
Initial Score =
Residue Identity =
Gaps =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2. US-09-142-524D-152 (1-15)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Residue Identity =

    US-09-142-524D-152 (1-15)
    US-09-142-524D-1 Sequence 1, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Initial Score
                                                                                                                                              SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2, Application US/09142524D GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence Name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQ ID NO 1
                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/142,524D CURRENT FILING DATE: 1998-09-09 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR FILING DATE: 1997-03-10 NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/09142524D GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/142,524D CURRENT FILING DATE: 1998-09-09 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR FILING DATE: 1997-03-10 NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Sone, Toshio
                                                                                ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Sone, Toshio APPLICANT: Kume, Akino:
                                                                                                           TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. US-09-142-524D-1 Sequence 1, Application above mean ****
2. US-09-142-524D-2 Sequence 2, Application U 105
3. US-09-142-524D-3 Sequence 2, Application U 134
3. US-09-142-524D-3 Sequence 3, Application U 134
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-142-524D-2 Sequence 2, Application US/09142524D
                                                                                                                             LENGTH: 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YQNPASWK
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 80
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MKVTVAFNOFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLOKNTIGTGRRİSLKLİTSÖĞİLASRRVDGIIAA
10 20 30 40 50 60 X 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-142-524D-2 Sequence 2, Application UUS-09-142-524D-3 Sequence 3, Application U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kume, Akinori
Dairiki, Kazuo
Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                                                                         Kume, Akinori
Dairiki, Kazuo
                                                                                                                                                                                                                                                                                                                      Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Description
        3 Optimized Score
27% Matches
3 Conservative Sub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          808
    Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Optimized Score =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Init. Opt.
Length Score Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12
                        4 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LSDISLKLTSGKIAS
Significance = -0.58
Mismatches = 10
= 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Significance
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.15
3
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sig. Frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -0.58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -0.58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.15
```

```
Sequence 3, Application US/09142524D
GENERAL INFORMATION:
APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Kime, Akinori
APPLICANT: Iwama, Akinori
APPLICANT: Iwama, Akiko
APPLICANT: Iwama, Akiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Disease
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR APPLICATION NUMBER: PCT/JP97/00740
SOFTWARE: PatentIn version 3.1
SEQ ID NO 3
LENGTH: 134
TYVER: DET.
                                                                                                                                                                                                                                             Initial Score = Residue Identity =

    US-09-142-524D-152 (1-15)
    US-09-142-524D-3 Sequence 3, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                              TYPE: PRT ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MKVTVAFNQFGBNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRİWLQFAKLTGFTLMGR
10 20 30 40 50 X 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK
80 90 100
RPLWIIFSGNMNIKLKWPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNPASWK
80 90 100 110 120 130
                                                                             mkvtvafnofgdnrrvfikrvsnviihgrridifaskn<br/>fhlokntigtgrrkknnriwlofakligftlmgr10 20 30 40 50 \times 60 70
                                                                                                                                                                                                                                             3 Optimized Score = 4
27% Matches = 5
3 Conservative Substitutions
                                                                                                                                                                                                                                                   4 Significance = -0.58
5 Mismatches = 10
lons = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X 10 X LSDISL---KLTSGKIAS
                                                                                                                                                                   LSDISL---KLTSGKIAS
```

```
SCORE
STDEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence Name
                                          A 100% similar sequence to the query sequence was found:
                                                                                     The scores below are sorted by initial score. Significance is calculated based on initial score.
                                                                                                                                             Number of residues:
Number of sequences searched:
Number of scores above cutoff:
                                                                                                                                                                                                                     Times:
                                                                                                                                                                                                                                                               Scores:
                                                                                                                                                                                                                                                                                                                                             Mismatch penalty
Gap penalty
Gap size penalty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SHONEGOES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 73 O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery sequence being compared:US-09-142-524D-28 (1-15)
Number of sequences searched:
3
Number of scores above cutoff:
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Results file us-09-142-524d-28.res made by jdelaval on Wed 23 Apr 103 17:45:42-PDT.
                                                                                                                                                                                                                                                                                                                                  Cutoff score
                                                                                                                                                                                                                                                                                                                                                                            Mismatch
                                                                                                                                                                                                                                                                                                                                                                                         Similarity matrix
                                                                                                                                                                                                                                                                                                                  Randomization group
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FastDB -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Results of the initial comparison of US-09-142-524D-28 (1-15) with: File : 09142524.pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IntelliGenetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fast Pairwise Comparison of Sequences
    Description
                                                                                                                                                                                                    CPU
00:00:00.00
                                                                                                                                                                                                                                                                                                                                                                                       Unitary
                                                                                                                                                                                                                                              Mean
6
                                                                                                                                                                                                                                                                                                                     0.05
0
                                                                                                                                                                                                                                                                                     SEARCH STATISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                  PARAMETERS
                                                                                                                                                                                                                                                                                                                                                          K-tuple
Joining penalty
Window size
                                                                                                                                                                                                                                             Median
3 -
                                                                                                                                                                                                                                             Standard Deviation 7.51
                                                                                                                                                                                                  Total Elapsed 00:00:00:00.00
Init. Opt.
Length Score Score Sig. Frame
                                                                                                                                                                                                                                                                                                                                                          150
```

```
APPLICANT: Kume, Akinori
APPLICANT: Iwame, Akinori
APPLICANT: Iwame, Akiko
APPLICANT: Iwame, Akiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Age
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Initial Score
Residue Identity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence Name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The list of other best scores is:
                                                           SOFTWARE: PatentIn version 3.1 SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/09142524D GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 3, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: Peptide-Based Immunoth FILE REFERENCE: SPO-103 CURRENT APPLICATION NUMBER: US/09/142,524D CURRENT FILLING DATE: 1998-09-09 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR FILING DATE: 1997-03-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                       APPLICANT: Sone, Toshio APPLICANT: Kume, Akino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 174
SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Dairiki, Kazuo
                                                                                                                                                                                                                                                                                                                                                                               US-09-142-524D-28 (1-15)
US-09-142-524D-1 Sequence 1, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-142-524D-28 (1-15)
US-09-142-524D-3 Sequence 3, Application US/09142524D
                         TYPE: PRT
ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2. US-09-142-524D-1 Sequence
3. US-09-142-524D-2 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1. US-09-142-524D-3 Sequence 3, Application U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 134
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                          RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNDASWK X 80 X 90 100 110 120 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR
10 20 30 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RPLWIIFSGNMNIKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           D 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Optimized Score = Matches =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2,1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application U
Application U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bern Ser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length Score Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80
105
                                                                                                                                                                                                        Agent for Treating Allergic Diseas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Significance =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.20
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -0.53
-0.53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sig. Frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gic Disea
```

Initial Score

Optimized Score

11

ω

Significance = -0.53

```
APPLICANT: Sone, Toshio
APPLICANT: Sone, Toshio
APPLICANT: Sone, Akinori
APPLICANT: Dairiki, Kazuo
APPLICANT: Inama, Akiko
APPLICANT: Ivama, Akiko
APPLICANT: Ivama, Akiko
APPLICANT: Ivama, Akiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: Spo-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT APPLICATION NUMBER: PCT/JP97/00740
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
NUMBER OF SEQ ID NOS: 174
SEQ ID NO 2
LENGTH: 105
TYPE: PRT
ORGANISM: Cryptomeria japonica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Initial Score = Residue Identity = Gaps = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure = Figure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Residue Identity =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3. US-09-142-524D-28 (1-15)
US-09-142-524D-2 Sequence 2, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2, Application US/09142524D GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YQNPASWK
80
RLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK
80 90 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGKIASRRVDGIIAA
X 10 20 30 40 50 60 70
                                                                                                                                                               MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR X 10 20 30 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X 10 X RPLWIIFSGN--MNIKL
                                                                                                                                                                                                                                                                                                                               RPLWIIFSGN--MNIKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23*
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23% Matches -= 4
2 Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Optimized Score = 3
Matches = 4
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Significance = -0.53
Mismatches = 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        011
```

```
Number of residues:
Number of sequences searched:
Number of scores above cutoff:
                                                                                                                                                                                                                                          Times:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SCORE
STDEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query sequence being compared:US-09-142-524D-29 (1-15)
Number of sequences searched:
3
Number of scores above cutoff:
3
        Sequence Name
                                              A 100% similar sequence to the query sequence was found:
                                                                                                Significance is calculated based
                                                                                                               The scores below are sorted by initial score.
                                                                                                                                                                                                                                                                                            Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatch penalty
                                                                                                                                                                                                                                                                                                                                                                                      Gap size penalty
                                                                                                                                                                                                                                                                                                                                                                                                     Gap penalty
                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity matrix
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Results file us-09-142-524d-29.res made by jdelaval on Wed 23 Apr 103 17:46:13-PDT.
                                                                                                                                                                                                                                                                                                                                                      Randomization group
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Release 5.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FastDB - Fast Pairwise Comparison of Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Results of the initial comparison of US-09-142-524D-29 (1-15) with: File: 09142524.pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IntelliGenetics
    Description
                                                                                                                                                                                                                           00:00:00.00
                                                                                                                                                                                                                                                                                                                                                                                                                                   Unitary
                                                                                                                                                                                                                                                                          Mean
7
                                                                                                                                                                                                                                                                                                                                                                                    1.00
                                                                                                                                                                                                                                                                                                                       SEARCH STATISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PARAMETERS
                                                                                                on initial
                                                                                                                                                                                                                                                                                                                                                                                                     Window size
                                                                                                                                                                                                                                                                                                                                                                                                                                 K-tuple
                                                                                                                                                                                                                                                                                                                                                                                                                  Joining penalty
                                                                                                                                                                                                                                                                          Median
3
                                                                                                                                                            319
3
3
                                                                                                score.
                                                                                                                                                                                                                        Total Elapsed 00:00:00:00.00
                                                                                                                                                                                                                                                                                       Standard Deviation
Init. Opt.
Length Score Score
                                                                                                                                                                                                                                                                                                                                                                                                   20
15
Sig. Frame
```

```
Initial Score = Residue Identity =
                                                                                                                                                                                                                                                                                                                                                                                                               2. US-09-142-524D-29 (1-15)
US-09-142-524D-2 Sequence 2, Application US/09142524D

    US-09-142-524D-29 (1-15)
    US-09-142-524D-3 Sequence 3, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence Name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The list of other best scores is:
                                                                SOFTWARE: PatentIn version 3.1 SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn version 3.1 SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Sone, Toshio
                                                                                                                                                                                                                                                                                                                                                                                  Sequence 2, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 3, Application US/09142524D GENERAL INFORMATION:
                                                                                                                     FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
                                                                                                                                                                                                                         APPLICANT: Iwama, Akiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas FILE REFERENCE: SPO-103 CURRENT APPLICATION NUMBER: US/09/142,524D CURRENT FILING DATE: 1998-09-09 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR FILING DATE: 1997-03-10
                                                                                                        NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Sone, Toshio
APPLICANT: Kume, Akino:
ORGANISM: Cryptomeria japonica
                        LENGTH: 105
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. US-09-142-524D-3 Sequence 3, Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RPLWIIFSGNWNIKLKWPWYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNDASWK
80 90 X 100 110 120 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-142-524D-2 Sequence 2, Application US-09-142-524D-1 Sequence 1, Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IFSGNMNIKLKMPMY
                                                                                                                                                                                                                                                                                              Kume, Akinori
Dairiki, Kazuo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kume, Akinori
Dairiki, Kazuo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Optimized Score = 15
Matches = 15
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       105
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Significance =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Init. Opt.
Score Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -0.15
-0.75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sig. Frame
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

Initial Score

Ħ

σ

Optimized Score

ıı

7

Significance = -0.15

```
Sequence 1, Application US/09142524D
GENERAL INFORMATION:
APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Iwama, Akinori
APPLICANT: Iwama, Akiko
APPLICANT: Kino, Kobauke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILLING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740-
PRIOR FILING DATE: 1997-03-10
NUMBER OF SEQ ID NOS: 174
SOFTWARE: PatentIn version 3.1
SEQ ID NO 1
LENGTH: 80
TYPE: PRT
ORGANISM: Cryptomeria japonica
                                                                                                                                                                               Initial Score = Residue Identity = Gaps = Figure 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Residue Identity = Gaps =

    US-09-142-524D-29 (1-15)
    US-09-142-524D-1 Sequence 1, Application US/09142524D

YQNPASWK
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRISLKLTSGKIASRRVDGIIAA 10 20 X 30 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK
80 90 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        X 10 X IFSGNMNIKLKMPMY
                                                                                                                                                                             2 Optimized Score = 3
20% Matches = 3
0 Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46% Matches = 7
0 Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7 Mismatches
                                                                                                                                                                               Significance = -0.75
Mismatches = 12

= 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IFSGNMNI
```

```
Mismatch penalty
Gap penalty
Gap size penalty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STDEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query sequence being compared:US-09-142-524D-30 (1-15)
Number of sequences searched:
3
Number of scores above cutoff:
3
                                                                                                  The scores below are sorted by initial score. Significance is calculated based on initial score.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Results file us-09-142-524d-30.res made by jdelaval on Wed 23 Apr 103 17:46:35-PDT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FastDB -
     Sequence Name
                                                                                                                                                                   Number of residues:
Number of sequences
Number of scores abo
                                                                                                                                                                                                                                                 Times:
                                                                                                                                                                                                                                                                                                  Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity matrix
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Release 5.4
                                                                                                                                                                                                                                                                                                                                                                Randomization group
                                                                                                                                                                                                                                                                                                                                                                                    Cutoff score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SCORE
                                                 100% similar sequence to the query sequence was found:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Results of the initial comparison of US-09-142-524D-30 (1-15) with: File : 09142524.pep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IntelliGenetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fast Pairwise Comparison of Sequences
                                                                                                                                                                                  sequences searched:
                                                                                                                                                                 scores above cutoff:
     Description
                                                                                                                                                                                                                                  00:00:00.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unitary
                                                                                                                                                                                                                                                                                Mean
9
                                                                                                                                                                                                                                                                                                                                                                                                  1.00
                                                                                                                                                                                                                                                                                                                                 SEARCH STATISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PARAMETERS
                                                                                                                                                                                                                                                                                                                                                                                                               Joining penalty Window size
                                                                                                                                                                                                                                                                                                                                                                                                                                                K-tuple
                                                                                                                                                                                                                                                                                 Median
3
                                                                                                                                                               319
3
.
                                                                                                                                                                                                                                                                                 Standard Deviation 6.66
                                                                                                                                                                                                                                Total Elapsed 00:00:00:00.00
Init. Opt.
Length Score Score Sig. Frame
                                                                                                                                                                                                                                                                                                                                                                                                                 20
15
```

```
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Residue Identity =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence Name
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The list of other best scores is:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Initial Score
                                                                  SOFTWARE: PatentIn version 3.1 SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO 3
LENGTH: 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 3, Application US/09142524D GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                               Sequence 2,
GENERAL INF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Kume, Akinori
APPLICANT: Dairiki, Kazuo
APPLICANT: Iwama, Akiko
APPLICANT: Iwama, Akiko
APPLICANT: Kino, Kohauke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT FILING ATE: 1998-09-09
PRIOR APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 197-03-10
                                                                                                         TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Disease FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
CURRENT FILING DATE: 1998-09-09
CRICK PEPTICATION NUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID NOS: 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Sone,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2. US-09-142-524D-2 Sequence 2, Application U 105 11

**** 1 standard deviation below mean ****
3. US-09-142-524D-1 Sequence 1, Application U 80 2
                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Sone, Toshio
                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-142-524D-30 (1-15)
US-09-142-524D-2 Sequence 2, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-142-524D-30 (1-15)
US-09-142-524D-3 Sequenc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. US-09-142-524D-3 Sequence 3, Application U
                         LENGTH: 105
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RPLWIIFSGNWNIKLKWPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNPASWK 80 X 90 100 110 120 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR 10 20 30 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                             e 2, Application US/09142524D INFORMATION:
                                                                                                                                                                                                                                                                  Iwama, Akiko
Kino, Kohsuke
                                                                                                                                                                                                                                                                                                           Kume, Akinori
Dairiki, Kazuo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MNIKLKMPMYIAGYK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Toshio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 3, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Optimized Score Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length Score Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Significance
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Opt.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sig.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Kume, Akinori
APPLICANT: Mairiki, Kazuo
APPLICANT: Mine, Akiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR APPLICATION NUMBER: PCT/JP97/00740
SOFTWARE: Patentin version 3.1
SEQ ID NO 1
SEQ ID NOS: 174
SOFTWARE: Patentin version 3.1
SEQ ID NOTHER 1997-03-10
ORGANISM: Cryptomeria japonica
                                                                                                                                                                Initial Score = Residue Identity = Gaps = =

    US-09-142-524D-30 (1-15)
    US-09-142-524D-1 Sequence 1, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Initial Score = Residue Identity = Gaps =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1, Application US/09142524D GENERAL INFORMATION:
YQNPASWK
80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10 X
KLKMPMYIAGYK
||||||||
                                                 MKVTVAFNQFGPNRRVEİKRVSNVIİHĠRRIDIFASKNFHLQKNTIGTGRRISLKLTSGKIASRRVDGIIAA
10 X 20 30 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RIKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK
80 X 90 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR
10 20 30 40 50 60 70
                                                                                                      X 10 X
                                                                                                                                                                26#
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80%
0
                                                                                                                                                         Optimized Score = 4
Matches = 4
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Optimized Score = 12
Matches = 12
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12 Significance = 12 Mismatches = ions =
                                                                                                                                                             4 Significance = 4 Mismatches = -
                                                                                                                                                             -1.05
11
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.30
3
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N X
```

```
Similarity matrix
Mismatch penalty
Gap penalty
Gap size penalty
Cutoff score
Randomization group
                                                                                                                                                                                                                                                                                                                      SCORE O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ******
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           > 0 < o | o | ntelliGenetics > 0 <
                                                                                                                                                                                                                                                                                                                                                                                    OMMCDMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7 O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query sequence being compared:US-09-142-524D-31 (1-15)
Number of sequences searched:
3
Number of scores above cutoff:
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Results file us-09-142-524d-31.res made by jdelaval on Wed 23 Apr 103 17:46:55-PDT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FastDB - Fast Pairwise Comparison of Sequences Release 5.4
The scores below are sorted by initial score. Significance is calculated based on initial score.
                                             Number of residues:
Number of sequences searched:
Number of scores above cutoff:
                                                                                                            Times:
                                                                                                                                              Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    50-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Results of the initial comparison of US-09-142-524D-31 (1-15) with: File : 09142524.pep
                                                                                             CPU
00:00:00.00
                                                                                                                                                                                                                                                          Unitary
                                                                                                                                   Mean
10
                                                                                                                                                                                                                     1.00
                                                                                                                                                                     SEARCH STATISTICS
                                                                                                                                                                                                                                                                                  PARAMETERS
                                                                                                                                                                                                                                 K-tuple
Joining penalty
Window size
                                                                                                                                  Median
3
                                               319
3
3
                                                                                                                                  Standard Deviation 7.51
                                                                                              Total Elapsed 00:00:00:00.00
                                                                                                                                                                                                                                   20
15
                                                                                                                                                                                                                                                                                                                                15
```

Sequence Name

Description

Init. Opt. Length Score Score Sig. Frame 2 100% similar sequences to the query sequence were found:

2. US-09-142-524D-31 (1-15) US-09-142-524D-2 Sequence 2, Application US/09142524D Sequence 2, Application US/09142524D Sequence 2, Application US/09142524D Sequence 2, Application US/09142524D Sequence 2, Application US/09142524D Septicant	X 10 X KNEMYLAGYKTEDGR - - - - - - - - -	Initial Score = 15 Optimized Score = 15 Significance = 0.67 Residue Identity = 100% Matches = 15 Mismatches = 0 Gaps = 0 Conservative Substitutions = 0 MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR 10 20 30 40 50 60 70	Sequence 3, Application US/09142524D GENERAL INFORMATION: APPLICANT: Some, Toshio APPLICANT: Kume, Akinori APPLICANT: Kume, Akinori APPLICANT: Loairiki, Kazuo APPLICANT: Ivama, Akiko APPLICANT: Kino, Kohsuke TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas FILTE REFERENCE: SPO-103 CURRENT APPLICATION NUMBER: US/09/142,524D CURRENT APPLICATION NUMBER: PCT/JP97/00740 PRIOR TILING DATE: 1998-09-09 PRIOR APPLICATION NUMBER: PCT/JP97/00740 PRIOR TILING DATE: 1997-03-10 NUMBER OF SEQ ID NOS: 174 SEQ ID NO 3 LENGTH: 134 TYPB: PRT ORGANISM: Cryptomeria japonica	1. US-09-142-524D-31 (1-15) US-09-142-524D-3 Sequence 3, Application US/09142524D	**** 1 standard deviation below mean **** 3. US-09-142-524D-1 Sequence 1, Application U 80 2 3 -1.	scription	ist of other best scores is:	1. US-09-142-524D-3 Sequence 3, Application U 134 15 15 0.67 0 2. US-09-142-524D-2 Sequence 2, Application U 105 15 15 0.67 0
--	--	--	---	--	--	-----------	------------------------------	---

```
GENERAL INFORMATION:
APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Kume, Akinori
APPLICANT: Dairiki, Kazuo
APPLICANT: Iwama, Akiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT FILING DATE: 1998-09-09
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR APPLICATION NUMBER: PCT/JP97/00740
SOFTWARE: Patentin version 3.1
SEQ ID NO 1
SEQ ID NO 1
LENGTH: 80
TYPE: PRT
ORGANISM: Cryptomeria japonica
                                                                                                                                                                 Initial Score = Residue Identity = Gaps = -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Initial Score = Residue Identity = =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3. US-09-142-524D-31 (1-15)
US-09-142-524D-1 Sequence 1, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1, Application US/09142524D GENERAL INFORMATION:
YQNPASWK
80
                                              MKVTVAFNQFGÞNRRVFIÁRVSNVIIHĠŔRIDIFASKNFHLQKNTIGTGRRISLKLTSGKIASRRVDGIIAA
10 20 30 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MKVTVAFNQFGPNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLMGR
10 20 30 40 50 60 70
                                                                                                        X 10 X KMPMYIAGYK----TFDGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15
100%
                                                                                                                                                                   Optimized Score = 3
Matches = 4
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Optimized Score = 15
Matches = 15
Conservative Substitutions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15 Significance = 15 Mismatches =
                                                                                                                                                             Significance = -1.07
Mismatches = 11
s = 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.67
```

> 0 < .
O| O Intelligenetics

FastDB - Fast Pairwise Comparison of Sequences
Release 5.4

```
Similarity matrix
Mismatch penalty
Gap penalty
Gap size penalty
Cutoff score
                                                                                                                                                                                                                                                                                                                                                                                                    SCORE O
                                                                                                                                                                                                                                                                                                                                                                                                                                            SECDEROES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          чο
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query sequence being compared:US-09-142-524D-36 (1-15) Number of sequences searched:

3 Number of scores above cutoff:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Results file us-09-142-524d-36.res made by jdelaval on Wed 23 Apr 103 17:47:17-PDT.
                                                                                                             Number of residues:
Number of sequences searched:
Number of scores above cutoff:
                                   A 100% identical sequence to the query sequence was not found.
                                                            The scores below are sorted by initial score. Significance is calculated based on initial score.
                                                                                                                                                                               Times:
                                                                                                                                                                                                                     Scores:
                                                                                                                                                                                                                                                                   Randomization group
The list of best scores is:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 50-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Results of the initial comparison of US-09-142-524D-36 (1-15) with: File : 09142524.pep
                                                                                                                                                                CPU
00:00:00.00
                                                                                                                                                                                                                                                                                                                           Unitary
1
                                                                                                                                                                                                        Mean
13
                                                                                                                                                                                                                                                                                              1.00
                                                                                                                                                                                                                                              SEARCH STATISTICS
                                                                                                                                                                                                                                                                       00
                                                                                                                                                                                                                                                                                                                                                               PARAMETERS
                                                                                                                                                                                                                                                                                                             K-tuple
Joining penalty
Window size
                                                                                                                                                                                                        Median
14
                                                                                                              319
3
                                                                                                                                                                                                        Standard Deviation 0.00
                                                                                                                                                                Total Elapsed 00:00:00:00.00
                                                                                                                                                                                                                                                                                                              20
15
                                                                                                                                                                                                                                                                                                                                                                                                                 13
```

```
APPLICANT: Sone, Toshio
APPLICANT: Kume, Akinori
APPLICANT: Kume, Akinori
APPLICANT: Iwama, Akiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
FILE REFERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT APPLICATION NUMBER: PCT/JP97/00740
PRIOR APPLICATION NUMBER: PCT/JP97/00740
PRIOR APPLICATION NUMBER: PCT/JP97/00740
SOFTMARE: Patentin version 3.1
SEQ ID NO 3
LENGTH: 134
TYPE: PAT
ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                Initial Score = Residue Identity =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3. US-09-142-524D-36 (1-15)
US-09-142-524D-3 Sequence 3, Application US/09142524D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 3, Application US/09142524D GENERAL INFORMATION:
RPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNPASWK
80 90 100 110 120 130
                                                            MKVTVAFNOFGÞURRÝÐ Í KRÍVSÍN VÍ Í HÁGRRIÐI FASKNFHLQKNTI GTGRRWKNNRI WLQFAKLTGFTLMGR
10 x 20 30 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK 80 90 100
                                                                                                    X
PCVFIKRVSNVIIHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PCVFIKRVSNVIIHG
                                                                                                                                                                                       13 Optimized Score = 13
86% Matches = 13
0 Conservative Substitutions
                                                                                                                                                                                                            13 Significance = 13 Mismatches =
```

```
Similarity matrix
Mismatch penalty
Gap penalty
Gap size penalty
Cutoff score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     > 0 < o| |o IntelliGenetics > 0 <
                                                                                                                                                                                                                                                                                                                                                                          SCORE O
                                                                                                                                                                                                                                                                                                                                                                                                                 0 H O Z H C O H 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 чo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query sequence being compared:US-09-142-524D-57 (1-15)
Number of sequences searched:
3
Number of scores above cutoff:
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Results file us-09-142-524d-57.res made by jdelaval on Wed 23 Apr 103 17:47:36-PDT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FastDB - Fast Pairwise Comparison of Sequences Release 5.4
                         The scores below are sorted by initial score. Significance is calculated based on initial score.
                                                                            Number of residues:
Number of sequences searched:
Number of scores above cutoff:
                                                                                                                                                                                     Scores:
A 100% identical sequence to the query sequence was not found.
                                                                                                                                               Times:
                                                                                                                                                                                                                                       Randomization group
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             50-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Results of the initial comparison of US-09-142-524D-57 (1-15) with: File : 09142524.pep
                                                                                                                                CPU
00:00:00.00
                                                                                                                                                                                                                                                                                             Unitary
1
                                                                                                                                                                       Mean
13
                                                                                                                                                                                                                                                                1.00
                                                                                                                                                                                                               SEARCH STATISTICS
                                                                                                                                                                                                                                                                                                                                    PARAMETERS
                                                                                                                                                                                                                                                                              K-tuple
Joining penalty
Window size
                                                                                                                                                                        Median
14
                                                                              319
3
3
                                                                                                                                                                        Standard Deviation 0.00
                                                                                                                                 Total Elapsed 00:00:00:00.00
                                                                                                                                                                                                                                                                                 1502
                                                                                                                                                                                                                                                                                                                                                                                         13_
```

The list of best scores is:

×

10

```
APPLICANT: Kume, Akinori
APPLICANT: Kume, Akinori
APPLICANT: Ivama, Akiko
APPLICANT: Ivama, Akiko
APPLICANT: Kino, Kohsuke
TITLE OF INVENTION: Peptide-Based Immunotherapeutic Agent for Treating Allergic Diseas
CURRENT SEPERENCE: SPO-103
CURRENT APPLICATION NUMBER: US/09/142,524D
CURRENT APPLICATION NUMBER: PCT/JP97/00740
PRIOR APPLICATION UNUMBER: PCT/JP97/00740
PRIOR FILING DATE: 1997-03-10
NUMBER OF SEQ ID NOS: 174
SOFTWARE: Patentin version 3.1
LENGTH: 134
TYPE: PAT
ORGANISM: Cryptomeria japonica
                                                                                                                                                                                                                 Initial Score = 13
Residue Identity = 100%
Gaus = 0

    US-09-142-524D-57 (1-15)
    US-09-142-524D-3 Sequence 3, Application US/09142524D

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 3, Application US/09142524D GENERAL INFORMATION:
GRRPLWIIFSGNMNIKLKMPMYIAGYKTFDGRRAEVSYVHVNGAKFIRRVDGIIAAYQNPASWK 80 90 100 110 120 130
                                                                                                                                X 10 X
KSMKVTVAFNQFGPN
||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GRRLKMPMYIAGYKTFDGRRVDGIIAAYQNPASWK
80 90 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KSMKVTVAFNQFGPN
                                                                  MKVTVÁFNÓFGÞNRRVFIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLM X 10 X 20 30 - 40 50 60 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MKVTVÁFNÓFÓFÞÍRRVEIKRVSNVIIHGRRIDIFASKNFHLQKNTIGTGRRWKNNRIWLQFAKLTGFTLM X 10 X 20 30 40 50 60 70
                                                                                                                                                                                                                                         13 Optimized Score = 00% Matches =
                                                                                                                                                                                                              Conservative Substitutions
                                                                                                                                                                                                            13 Significance = 0.00
13 Mismatches = 0
ions = 0
```

=> fil reg FILE 'REGISTRY' ENTERED AT 18:25:31 ON 23 APR 2003 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT. PLEASE SEE "HELP USAGETERMS" FOR DETAILS. COPYRIGHT (C) 2003 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 22 APR 2003 HIGHEST RN 503805-80-9 DICTIONARY FILE UPDATES: 22 APR 2003 HIGHEST RN 503805-80-9

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2003

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details: http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

=> d sta que 116

L7 56 SEA FILE=REGISTRY ABB=ON PLU=ON (RPLWIIFSGNMNKL)|(IFSGNMNKLKM PMY)|(MNIKLKMPMYIAGYK)|(KMPMYIAGYKTFDGR)|(PCVFKRVSNVIIHG)|(KSMK VTVAFNQFGPN)/SQSP

L15 24 SEA FILE=REGISTRY ABB=ON PLU=ON (VDGIIAAYQNPASWK)|(NNRIWLQFAK LTGFT)|(LQFAKLTGFTLMGKG)|(GIDIFASKNFHLQKN)|(ASKNFHLQKNTIGTG)|(S RAEVSYVHVNGAKF)|(LSDISLKLTSGKIAS)/SQSP

L16 6 SEA FILE=REGISTRY ABB=ON PLU=ON L7 AND L15

=> d l16 sqide can tot

L16 ANSWER 1 OF 6 REGISTRY COPYRIGHT 2003 ACS

RN 502526-68-3 REGISTRY

CN 24: PN: JP2003079389 SEQID: 1 unclaimed protein (9CI) (CA INDEX NAME)

FS PROTEIN SEQUENCE

SQL 105

PATENT ANNOTATIONS (PNTE):

SEQ 1 MKVTVAFNQF GPNRRVFIKR VSNVIIHGRR IDIFASKNFH LQKNTIGTGR

51 RWKNNRIWLQ FAKLTGFTLM GRRLKMPMYI AGYKTFDGRR VDGIIAAYQN

101 PASWK

HITS AT: 35-49, 54-68, 75-89, 91-105

RELATED SEQUENCES AVAILABLE WITH SEQLINK

MF Unspecified

CI MAN

SR CA

Jan Delaval
Coloronco Librarian
Electrology & Chemical Library
Call 12:07 - 703-308-4498
jan.dalaval@uspto.gov

	•
·	

LC STN Files: CA, CAPLUS 1 REFERENCES IN FILE CA (1962 TO DATE) 1 REFERENCES IN FILE CAPLUS (1962 TO DATE) REFERENCE 1: 138:253826 L16 ANSWER 2 OF 6 REGISTRY COPYRIGHT 2003 ACS 502526-45-6 REGISTRY 1: PN: JP2003079389 SEQID: 3 unclaimed protein (9CI) (CA INDEX NAME) CN FS PROTEIN SEQUENCE SOL 134 PATENT ANNOTATIONS (PNTE): Sequence | Patent Source |Reference Not Given|JP2003079389 |unclaimed |SEQID 3 1 MKVTVAFNQF GPNRRVFIKR VSNVIIHGRR IDIFASKNFH LQKNTIGTGR SEO ============ 51 RWKNNRIWLQ FAKLTGFTLM GRRPLWIIFS GNMNIKLKMP MYIAGYKTFD _____ ======== ------ ------101 GRRAEVSYVH VNGAKFIRRV DGIIAAYQNP ASWK _ _________________ 35-49, 54-68, 83-102, 120-134 HITS AT: **RELATED SEQUENCES AVAILABLE WITH SEQLINK** MF Unspecified CI MAN SR CALC STN Files: CA, CAPLUS 1 REFERENCES IN FILE CA (1962 TO DATE) 1 REFERENCES IN FILE CAPLUS (1962 TO DATE) REFERENCE 1: 138:253826 L16 ANSWER 3 OF 6 REGISTRY COPYRIGHT 2003 ACS RN 501062-84-6 REGISTRY CN Allergen (Cryptomeria japonica synthetic allergen multi-T cell epitope B) (9CI) (CA INDEX NAME) OTHER NAMES: 3: PN: JP2003079387 SEQID: 3 claimed protein CN PROTEIN SEQUENCE FS SQL 134 PATENT ANNOTATIONS (PNTE): Sequence | Patent Source | Reference Not Given|JP2003079387 Iclaimed |SEQID 3 SEO 1 MKVTVAFNQF GPNRRVFIKR VSNVIIHGRR IDIFASKNFH LQKNTIGTGR

51 RWKNNRIWLO FAKLTGFTLM GRRPLWIIFS GNMNIKLKMP MYIAGYKTFD

101 GRRAEVSYVH VNGAKFIRRV DGIIAAYONP ASWK

		4.

35-49, 54-68, 83-102, 120-134 HITS AT: **RELATED SEQUENCES AVAILABLE WITH SEQLINK** MF Unspecified CI MAN SR CA LC STN Files: CA, CAPLUS 1 REFERENCES IN FILE CA (1962 TO DATE) 1 REFERENCES IN FILE CAPLUS (1962 TO DATE) REFERENCE 1: 138:220362 L16 ANSWER 4 OF 6 REGISTRY COPYRIGHT 2003 ACS 501062-83-5 REGISTRY RN Allergen (Cryptomeria japonica synthetic allergen multi-T cell epitope A) CN (9CI) (CA INDEX NAME) OTHER NAMES: 1: PN: JP2003079387 SEQID: 1 claimed protein FS PROTEIN SEQUENCE SQL 105 PATENT ANNOTATIONS (PNTE): Sequence | Patent Source | Reference _____+ Not Given|JP2003079387 |claimed |SEQID 1 1 MKVTVAFNOF GPNRRVFIKR VSNVIIHGRR IDIFASKNFH LQKNTIGTGR SEO _____ ___ 51 RWKNNRIWLO FAKLTGFTLM GRRLKMPMYI AGYKTFDGRR VDGIIAAYQN _____ 101 PASWK 35-49, 54-68, 75-89, 91-105 **RELATED SEQUENCES AVAILABLE WITH SEQLINK** Unspecified CI MAN SR CA LC STN Files: CA, CAPLUS 1 REFERENCES IN FILE CA (1962 TO DATE) 1 REFERENCES IN FILE CAPLUS (1962 TO DATE) 1: 138:220362 REFERENCE L16 ANSWER 5 OF 6 REGISTRY COPYRIGHT 2003 ACS 196718-37-3 REGISTRY RN Multiepitope allergen (synthetic Cryptomeria japonica allergen Cry j 1/Cry CMj 2-derived 134-amino acid isoform) (9CI) (CA INDEX NAME) PROTEIN SEQUENCE FS SOL 134 1 MKVTVAFNQF GPNRRVFIKR VSNVIIHGRR IDIFASKNFH LQKNTIGTGR SEO _____ 51 RWKNNRIWLQ FAKLTGFTLM GRRPLWIIFS GNMNIKLKMP MYIAGYKTFD _____ ___ ______

101 GRRAEVSYVH VNGAKFIRRV DGIIAAYQNP ASWK

35-49, 54-68, 83-102, 120-134

HITS AT:

			,
	·		·
			,

```
**RELATED SEOUENCES AVAILABLE WITH SEOLINK**
     Unspecified
MF
CI
    MAN
SR
    CA
LC
     STN Files:
                 CA, CAPLUS
               1 REFERENCES IN FILE CA (1962 TO DATE)
               1 REFERENCES IN FILE CAPLUS (1962 TO DATE)
REFERENCE
            1: 127:277192
L16 ANSWER 6 OF 6 REGISTRY COPYRIGHT 2003 ACS
     196718-36-2 REGISTRY
RN
CN
    Multiepitope allergen (synthetic Cryptomeria japonica allergen Cry j 1/Cry
     j 2-derived 105-amino acid isoform) (9CI) (CA INDEX NAME)
FS
     PROTEIN SEQUENCE
SQL
   105
         1 MKVTVAFNQF GPNRRVFIKR VSNVIIHGRR IDIFASKNFH LQKNTIGTGR
SEQ
                                               _____
        51 RWKNNRIWLQ FAKLTGFTLM GRRLKMPMYI AGYKTFDGRR VDGIIAAYQN
              _____
                                    _____
       101 PASWK
           35-49, 54-68, 75-89, 91-105
HITS AT:
**RELATED SEQUENCES AVAILABLE WITH SEQLINK**
MF
    Unspecified
CI
    MAN
SR
    CA
LC
     STN Files:
                 CA, CAPLUS
              1 REFERENCES IN FILE CA (1962 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1962 TO DATE)
          1: 127:277192
REFERENCE
=> d his 116-
     (FILE 'REGISTRY' ENTERED AT 18:15:33 ON 23 APR 2003)
L16
              6 S L7 AND L15
               SAV L7 DIBRINO1/A
                SAV L15 DIBRINO2/A
               SAV L16 DIBRINO3/A
     FILE 'HCAOLD' ENTERED AT 18:22:48 ON 23 APR 2003
L17
             0 S L16
     FILE 'HCAPLUS' ENTERED AT 18:22:56 ON 23 APR 2003
L18
              3 S L16
                SEL RN
                DEL SEL
                SEL RN 3
     FILE 'REGISTRY' ENTERED AT 18:23:36 ON 23 APR 2003
L19
              5 S E1-E5
L20
              2 S L19 AND L16
              3 S L19 NOT L20
L21
              1 S L21 AND L7, L15
L22
L23
              2 S L21 NOT L22
     FILE 'USPATFULL, USPAT2' ENTERED AT 18:25:15 ON 23 APR 2003
             0 S L16
L24
```

			,	
			•	
		•		
	·			
•				
				·

FILE 'REGISTRY' ENTERED AT 18:25:31 ON 23 APR 2003

=> fil hcaplus FILE 'HCAPLUS' ENTERED AT 18:25:56 ON 23 APR 2003 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT. PLEASE SEE "HELP USAGETERMS" FOR DETAILS. COPYRIGHT (C) 2003 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 23 Apr 2003 VOL 138 ISS 17 FILE LAST UPDATED: 22 Apr 2003 (20030422/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 118 all tot

L18 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2003 ACS

AN 2003:210113 HCAPLUS

DN 138:253826

TI Purification of recombinant multi-T cell epitope from inclusion body

IN Miyahara, Michinori; Mori, Takeshi; Yokoyama, Minehiko; Kamijo, Masayuki; Yamazaki, Tetsuya; Yamashita, Akio; Osamu, Kosuke

PA Meiji Milk Products, Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 16 pp. CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C12P021-02

ICS C12N015-09

CC 16-1 (Fermentation and Bioindustrial Chemistry)

Section cross-reference(s): 1, 3, 15

FAN.CNT 1

PATENT NO. KIND DATE APPLICATION NO. DATE
PI JP 2003079389 A2 20030318 JP 2002-189240 20020628
PRAI JP 2001-196579 A 20010628

The recombinant multi-T cell epitope polypeptide is purified from inclusion body of Escherichia coli by solubilization with guanidine/urea; and subjection to copper-chelated chromatog., cation exchange chromatog., and reverse-phase chromatog. Purifn. of recombinant multi-T cell epitope polypeptide A comprising 6 epitopes of Cry J1 and j2, the main allergen protein of Cryptomeria japonica, by construction of plasmid pQTF7.DELTA.cr, transformation of E. coli, etc. was shown.

sugi pollen allergen protein epitope chromatog purifn; Escherichia recombinant sugi pollen allergen protein epitope

IT Allergens

RL: BPN (Biosynthetic preparation); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)

(Cry j I (Cryptomeria japonica, I); purifn. of recombinant multi-T cell epitope from inclusion body of Escherichia coli)

IT Allergens

				,
	•			
		i		

```
RL: BPN (Biosynthetic preparation); PUR (Purification or recovery); BIOL
     (Biological study); PREP (Preparation)
        (Cry j II; purifn. of recombinant multi-T cell epitope from inclusion
        body of Escherichia coli)
IT
    Affinity chromatography
        (copper-chelated; purifn. of recombinant multi-T cell epitope from
        inclusion body of Escherichia coli)
IT
     Plasmids
        (pQTF7.DELTA.cr; purifn. of recombinant multi-T cell epitope from inclusion body of Escherichia coli)
IT
     Cryptomeria japonica
        (pollen; purifn. of recombinant multi-T cell epitope from inclusion
        body of Escherichia coli)
ΤT
     Cation exchange chromatography
     DNA sequences
    Epitopes
    Escherichia coli
     Fermentation
     Inclusion bodies
     Pollen
     Protein sequences
     Reversed phase chromatography
        (purifn. of recombinant multi-T cell epitope from inclusion body of
        Escherichia coli)
TΤ
     Immunization
        (vaccination; purifn. of recombinant multi-T cell epitope from
        inclusion body of Escherichia coli)
     57-13-6, Urea, biological studies 113-00-8, Guanidine
IT
     RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
     (Uses)
        (purifn. of recombinant multi-T cell epitope from inclusion body of
        Escherichia coli)
                                                502526-49-0
TT
     502526-46-7
                   502526-47-8
                                  502526-48-9
                                                               502526-50-3
                                                502526-54-7
     502526-51-4
                   502526-52-5
                                  502526-53-6
                                                               502526-55-8
                                                502526-59-2
                                                               502526-60-5
     502526-56-9
                   502526-57-0
                                  502526-58-1
                   502526-62-7
                                  502526-63-8
                                                502526-64-9
                                                               502526-65-0
     502526-61-6
     502526-66-1
                   502526-67-2
                                  502526-69-4
     RL: PRP (Properties)
        (unclaimed nucleotide sequence; purifn. of recombinant multi-T cell
        epitope from inclusion body)
ΙT
     502526-45-6 502526-68-3
     RL: PRP (Properties)
        (unclaimed protein sequence; purifn. of recombinant multi-T cell
        epitope from inclusion body)
L18 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2003 ACS
ΑN
     2003:210110 HCAPLUS
DN
     138:220362
     Expression of recombinant Japanese cedar allergen multi-T cell epitope in
TΙ
     Escherichia coli inclusion body
     Miyahara, Michinori; Mori, Takeshi; Yokoyama, Minehiko; Kamijo, Masayuki;
IN
     Yamazaki, Tetsuya; Yamashita, Akio; Kino, Kouuke
    Meiji Milk Products, Co., Ltd., Japan
PΑ
SO
     Jpn. Kokai Tokkyo Koho, 19 pp.
     CODEN: JKXXAF
DT
     Patent
LA
     Japanese
IC
     ICM C12N015-09
     ICS A61K035-74; A61K048-00; A61P037-00
     15-2 (Immunochemistry)
     Section cross-reference(s): 3, 16
FAN.CNT 1
                                            APPLICATION NO. DATE
     PATENT NO.
                      KIND DATE
```

÷			
	7		

```
20030318
    JP 2003079387
                       A2
                                            JP 2002-189243
                                                              20020628
PΙ
                      Α
                            20010628
PRAI JP 2001-196598
    Recombinant expression of multi-T cell epitopes comprising 6 or 7 epitopes
    of major allergens of Japanese cedar (C. japonica) pollen, Cry j 1 and Cry j2, in E. coli as inclusion bodies, is disclosed. A construct contg. trp
     operon promoter/operator region, Shine-Dalgarno sequence, multi-T cell
     epitope coding sequence, and bacteriophage .lambda. terminator to, is
    sugi pollen allergen epitope recombinant expression Escherichia inclusion
ST
     body; T cell epitope Cryptomeria pollen allergen Escherichia inclusion
     body; Japanese cedar allergen epitope Escherichia inclusion body
     expression
    Allergens
TΤ
     RL: BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological
     study); PREP (Preparation)
        (Cry j I (Cryptomeria japonica, I); expression of recombinant Japanese
        cedar allergen multi-T cell epitope in Escherichia coli inclusion body)
ΙT
    Allergens
     RL: BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological
     study); PREP (Preparation)
        (Cry j II; expression of recombinant Japanese cedar allergen multi-T
        cell epitope in Escherichia coli inclusion body)
     Cryptomeria japonica
ΙT
     Epitopes
     Escherichia coli
     Inclusion bodies
     Pollen
     Protein sequences
     T cell (lymphocyte)
     cDNA sequences
        (expression of recombinant Japanese cedar allergen multi-T cell epitope
        in Escherichia coli inclusion body)
     Genetic element
ΙT
     RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
     (Uses)
        (operator, trp operon; expression of recombinant Japanese cedar
        allergen multi-T cell epitope in Escherichia coli inclusion body)
     Genetic element
IT
     RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
        (ribosome-binding site; expression of recombinant Japanese cedar
        allergen multi-T cell epitope in Escherichia coli inclusion body)
IΤ
     Coliphage .lambda.
        (terminator of; expression of recombinant Japanese cedar allergen
        multi-T cell epitope in Escherichia coli inclusion body)
IT
     Genetic element
     RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
        (terminator, bacteriophage .lambda.; expression of recombinant Japanese
        cedar allergen multi-T cell epitope in Escherichia coli inclusion body)
ΙT
     Promoter (genetic element)
     RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
        (trp operon; expression of recombinant Japanese cedar allergen multi-T
        cell epitope in Escherichia coli inclusion body)
ΤТ
        (trp; expression of recombinant Japanese cedar allergen multi-T cell
        epitope in Escherichia coli inclusion body)
ΤТ
     501062-83-5P
     RL: BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological
     study); PREP (Preparation)
        (amino acid sequence; expression of recombinant Japanese cedar allergen
```

		and the second s
	·	

```
multi-T cell epitope in Escherichia coli inclusion body)
ΙT
     501062-84-6
     RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
     (Biological study)
        (amino acid sequence; expression of recombinant Japanese cedar allergen
        multi-T cell epitope in Escherichia coli inclusion body)
IT
     501062-85-7
     RL: BSU (Biological study, unclassified); BUU (Biological use,
     unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)
        (nucleotide sequence; expression of recombinant Japanese cedar allergen
        multi-T cell epitope in Escherichia coli inclusion body)
     501062-86-8
IT
     RL: BSU (Biological study, unclassified); PRP (Properties); BIOL
     (Biological study)
        (nucleotide sequence; expression of recombinant Japanese cedar allergen
        multi-T cell epitope in Escherichia coli inclusion body)
                                 501070-63-9
                                               501070-64-0
                                                             501070-65-1
IT
     501070-61-7
                   501070-62-8
                                 501070-68-4
                                               501070-69-5
                                                             501070-70-8
     501070-66-2
                   501070-67-3
                                                             501070-75-3
     501070-71-9
                   501070-72-0
                                 501070-73-1
                                               501070-74-2
                                                             501070-80-0
                   501070-77-5
                                 501070-78-6
                                               501070-79-7
     501070-76-4
                   501070-82-2
     501070-81-1
     RL: PRP (Properties)
        (unclaimed nucleotide sequence; expression of recombinant Japanese
        cedar allergen multi-T cell epitope in Escherichia coli inclusion body)
L18 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2003 ACS
     1997:617989 HCAPLUS
AN
     127:277192
DN
     Peptide-base immunotherapeutic agent for allergic diseases
TI
     Sone, Toshio; Kume, Akinori; Dairiki, Kazuo; Iwama, Akiko; Kino, Kohsuke
IN
     Meiji Milk Products Co., Ltd., Japan; Sone, Toshio; Kume, Akinori;
PA
     Dairiki, Kazuo; Iwama, Akiko; Kino, Kohsuke
SO
     PCT Int. Appl., 58 pp.
     CODEN: PIXXD2
DT
     Patent
LA
     Japanese
     ICM A61K039-35
IC
     ICS C07K014-725
СC
     15-2 (Immunochemistry)
FAN.CNT 1
                                           APPLICATION NO. DATE
     PATENT NO.
                      KIND DATE
                            DATE ____
                                          WO 1997-JP740 19970310
РΤ
     WO 9732600
                     A1
                            19970912
         W: CA, CN, JP, KR, US
         RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU; MC, NL, PT, SE
                                           CA 1997-2248937 19970310
     CA 2248937
                      AA 19970912
                                                            19970310
                            19990602
                                           CN 1997-194541
     CN 1218412
                                           EP 1997-906863
                                                            19970310
     EP 923940
                      A1
                            19990623
         R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, FI
                            19960310
PRAI JP 1996-80702
     WO 1997-JP740
                            19970310
     A peptide-base immunotherapeutic agent contg. an efficacious amt. of a
     monomol. multi-epitope peptide prepd. by bonding T-cell epitope regions
     derived from different allergen mols. with each other, e.g. Cry j 1/Cry i
     2 or Cry j 1/Cha 0 1. .It is efficacious for the prevention and therapy of
     a wide variety of allergic diseases.
     allergen multiple epitope immunotherapy allergic disease
ST
ΙT
     Allergens
     RL: BSU (Biological study, unclassified); BIOL (Biological study)
        (Cha 0 1 multi-epitope; multi-epitope peptides of Cry j 1 and/or Cry j
        2 and/or Cha 0 1 allergens are prepd. for immunotherapy of allergic
        diseases)
```

		•		
	·			

```
ΙT
    Allergens
    RL: BSU (Biological study, unclassified); BIOL (Biological study)
        (Cry j I (Cryptomeria japonica, I), multi-epitope; multi-epitope
        peptides of Cry j 1 and/or Cry j 2 and/or Cha 0 1 allergens are prepd.
        for immunotherapy of allergic diseases)
ΙT
     Allergens
     RL: BSU (Biological study, unclassified); BIOL (Biological study)
        (Cry j II, multi-epitope; multi-epitope peptides of Cry j 1 and/or Cry
        j 2 and/or Cha 0 1 allergens are prepd. for immunotherapy of allergic
        diseases)
ΙT
     Immunoglobulins
     RL: BSU (Biological study, unclassified); BIOL (Biological study)
        (E; multi-epitope peptides of Cry j 1 and/or Cry j 2 and/or Cha 0 1
        allergens are prepd. for immunotherapy of allergic diseases)
IT
     Histocompatibility antigens
     RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL
     (Biological study); PROC (Process)
        (HLA-DP, DPB1*0501 and DPA1*0101 and DPB1*0201; multi-epitope peptides
        of Cry j 1 and/or Cry j 2 and/or Cha 0 1 allergens are prepd. for
        immunotherapy of allergic diseases)
ΙT
     Histocompatibility antigens
     RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL
     (Biological study); PROC (Process)
        (HLA-DQ, DQB1*0602 and DQA1*0102; multi-epitope peptides of Cry j 1
        and/or Cry j 2 and/or Cha 0 1 allergens are prepd. for immunotherapy of
        allergic diseases)
     Histocompatibility antigens
TΤ
     RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL
     (Biological study); PROC (Process)
        (HLA-DR, DRB5*0101 and DRB4*0101; multi-epitope peptides of Cry j 1
        and/or Cry j 2 and/or Cha 0 1 allergens are prepd. for immunotherapy of
        allergic diseases)
     Histocompatibility antigens
ΙT
     RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL
     (Biological study); PROC (Process)
        (HLA; multi-epitope peptides of Cry j 1 and/or Cry j 2 and/or Cha 0 1
        allergens are prepd. for immunotherapy of allergic diseases)
ΙT
     Epitopes
     RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL
     (Biological study); USES (Uses)
        (T cell; multi-epitope peptides of Cry j 1 and/or Cry j 2 and/or Cha 0
        1 allergens are prepd. for immunotherapy of allergic diseases)
     Antigen presentation
ΙT
        (cells; multi-epitope peptides of Cry j 1 and/or Cry j 2 and/or Cha 0 1 \,
        allergens are prepd. for immunotherapy of allergic diseases)
ΙT
     T cell (lymphocyte)
        (epitopes; multi-epitope peptides of Cry j 1 and/or Cry j 2 and/or Cha
        0 1 allergens are prepd. for immunotherapy of allergic diseases)
     Cryptomeria japonica
ΤT
     Immunotherapy
     Lymphocyte
     Protein sequences
         (multi-epitope peptides of Cry j 1 and/or Cry j 2 and/or Cha 0 1
        allergens are prepd. for immunotherapy of allergic diseases)
IΤ
     RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
     use); BIOL (Biological study); PREP (Preparation); USES (Uses)
         (multi-epitope; multi-epitope peptides of Cry j 1 and/or Cry j 2 and/or
        Cha 0 1 allergens are prepd. for immunotherapy of allergic diseases)
     196718-35-1P 196718-36-2P 196718-37-3P
IT
     RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic
     use); BIOL (Biological study); PREP (Preparation); USES (Uses)
```

(amino acid sequence; multi-epitope peptides of Cry j 1 and/or Cry j 2

	•	•
·		

and/or Cha 0 1 allergens are prepd. for immunotherapy of allergic diseases)

IT 196510-89-1P 196521-96-7P

RL: BPN (Biosynthetic preparation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses) (multi-epitope peptides of Cry j 1 and/or Cry j 2 and/or Cha 0 1 allergens are prepd. for immunotherapy of allergic diseases)

=> fil reg FILE 'REGISTRY' ENTERED AT 18:26:09 ON 23 APR 2003 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT. PLEASE SEE "HELP USAGETERMS" FOR DETAILS. COPYRIGHT (C) 2003 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 22 APR 2003 HIGHEST RN 503805-80-9 DICTIONARY FILE UPDATES: 22 APR 2003 HIGHEST RN 503805-80-9

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2003

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details: http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

=> d sqide can tot 121

L21 ANSWER 1 OF 3 REGISTRY COPYRIGHT 2003 ACS

RN 196718-35-1 REGISTRY

CN Multiepitope allergen (synthetic Cryptomeria japonica allergen Cry j 1/Cry j 2-derived 80-amino acid isoform) (9CI) (CA INDEX NAME)

FS PROTEIN SEQUENCE

SOL 80

SEQ 1 MKVTVAFNQF GPNRRVFIKR VSNVIIHGRR IDIFASKNFH LQKNTIGTGR
51 RISLKLTSGK IASRRVDGII AAYQNPASWK

MF Unspecified

CI MAN

SR CA

LC STN Files: CA, CAPLUS

1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 127:277192

L21 ANSWER 2 OF 3 REGISTRY COPYRIGHT 2003 ACS

RN 196521-96-7 REGISTRY

CN L-Isoleucine, L-isoleucyl-L-phenylalanyl-L-seryl-L-lysyl-L-asparaginyl-L-leucyl-L-asparaginyl-L-isoleucyl-L-lysyl-L-leucyl-L-asparaginyl-L-methionyl-L-prolyl-L-leucyl-L-tyrosyl-L-isoleucyl-L-alanylglycyl-L-asparaginyl-L-lysyl-L-arginyl-L-phenylalanyl-L-isoleucyl-L-lysyl-L-arginyl-L-seryl-L-asparaginyl-L-valyl- (9CI) (CA_INDEX_NAME)

FS PROTEIN SEQUENCE

SQL 31

·					
			\		
		,		·	
				,	

SEQ 1 IFSKNLNIKL NMPLYIAGNK RRFIKRVSNV I

MF C168 H283 N49 O40 S

CI MAN

SR CA

LC STN Files: CA, CAPLUS

1 REFERENCES IN FILE CA (1962 TO DATE)
1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 127:277192

L21 ANSWER 3 OF 3 REGISTRY COPYRIGHT 2003 ACS

RN 196510-89-1 REGISTRY

CN L-Isoleucine, L-seryl-L-serylglycyl-L-lysyl-L-asparaginyl-L-.alpha.glutamylglycyl-L-threonyl-L-asparaginyl-L-isoleucyl-L-tyrosyl-Lasparaginyl-L-asparaginyl-L-alpha.-glutamyl-L-alanyl-Lphenylalanyl-L-lysyl-L-valyl-L-.alpha.-glutamyl-L-arginyl-L-arginyl-Lphenylalanyl-L-isoleucyl-L-lysyl-L-arginyl-L-valyl-L-seryl-L-asparaginyl-Lvalyl- (9CI) (CA INDEX NAME)

FS PROTEIN SEQUENCE; STEREOSEARCH

SQL 31

SEQ 1 SSGKNEGTNI YNNNEAFKVE RRFIKRVSNV I

MF C155 H251 N49 O49

SR CA

LC STN Files: CA, CAPLUS

PAGE 1-A

		•

PAGE 1-B

PAGE 2-A

					t	
						•'
			•			

PAGE 2-B

PAGE 3-A

PAGE 3-B

				.
			(
			`	
•				

PAGE 4-A

PAGE 4-B

1 REFERENCES IN FILE CA (1962 TO DATE)

1 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 127:277192